IMPACT OF LIVELIHOOD DIVERSIFICATION ON HOUSEHOLD FOOD SECURITY: THE CASE OF HURUNGWE DISTRICT, ZIMBABWE

by

ADMIRAL NCUBE

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SUPERVISOR: DR. STEPHAN P. TREURNICHT

A. DECLARATION

I, Admiral Ncube declare that " **The Impact of Livelihood Diversification on Household Food Security: The Case of Hurungwe District, Zimbabwe**" is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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Admiral Ncube

A. SUMMARY

This study examines the role of livelihood diversification in promoting household food security with particular reference to Hurungwe District in Zimbabwe. This focuses on assessing the contribution and impact of predominant livelihood diversification strategies in study area. The study employed qualitative methods of research entailing focus group discussions, observation, key informant interviews and literature review as methods of data collection. The study revealed that limited access to credit, skills development, markets and transport infrastructure weaken the efficacy of nonfarm livelihoods to improve food security. Key recommendations are that government, NGOs and communities must work in tandem to increase livelihood options for food insecure communities. Suggested strategies include increasing access to micro finance, vocational skills training and other support services paying attention to gender considerations. Areas requiring further investigation which emanated from the study include the impact of the shift to tobacco farming and how biotechnology has affected smallholder farmers.

Key Terms: Livelihoods; Livelihood Diversification; Food Security; Non-Farm Livelihoods; self-employment; wage labour; drought

B. ACKNOWLEDGMENTS

I acknowledge the support, guidance and motivation that I received from my supervisor Dr Stephan Treunicht. I am indeed grateful for all the invaluable comments and input that culminated in this thesis.

Secondly, I extend my heartfelt gratitude to my loving wife Margret and playful son Christian, who not provided all the moral and financial support, encouraging me to soldier on amidst competing demands in my schedule. Though I will not be able to compensate the family time that was sacrificed to see this work through, I sincerely hope the whole experience had a lot of positives to draw from.

This thesis would also not have been possible without support from the World Vision Staff in Hurungwe District who facilitate all the community entry processes and related logistic. This includes all the key informants and community members from the District who took time to share their insights and actively participated in the field work. Your priceless input and support was very much appreciated. I hope the whole exercise was mutually enriching and beneficial.

More importantly, I earnestly thank God, through whose providence and blessing I have been able to finally complete this thesis.

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ADAF: AGRICULTURE DEVELOPMENT ASSISTANCE FUND

DCDC: DEVELOPMENT, CONCEPTS AND DOCTRINE CENTRE

DFID: DEPARTMENT FOR INTERNATIONAL DEVELOPMENT

EMA: ENVIRONMENTAL MANAGEMENT AUTHORITY

ERA: ENVIRONMENTAL RIGHTS ACTION

FANTA: FOOD AND NUTRITION TECHNICAL ASSISTENCE

FAO: FOOD AND AGRICULTURE ORGANISATION

FGD: FOCUS GROUP DISCUSSIONS

FFSSA: FORUM FOR FOOD SECURITY IN SOUTHERN AFRICA

FNC: FOOD AND NUTRITION COUNCIL

GCM: GENERAL CIRCULATION MODELS

GDP: GROSS DOMESTIC PRODUCT

GMB: GRAIN MARKETING BOARD

GM: GENETICALLY MODIFIED

GMO: GENETICALLY MODIFIED ORGANISMS

HIV/AIDS: HUMAN IMMUNO-DEFICENCY VIRUS/ ACQUIRED IMMUNO-DEFICENCY SYNDROME

IDE: INTERNATIONAL DEVELOPMENT ENTERPRISE

IDS: INSTITUTE OF DEVELOPMENT STUDIES

IFAD: INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT

IFPRI: INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

IISD: INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT

IPCC: INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

KII: KEY INFORMANT INTERVIEWS

LEAD: LINKAGES FOR THE ECONOMIC ADVANCEMENT OF THE DISADVANTAGED

MDG: MILLENIUM DEVELOPMENT GOALS

MDP: MICRO-ENTEPRISE DEVELOPMENT PROGRAMME

NCABR: NORTH CAROLINA ASSOCIATION OF MEDICAL RESEARCH

NGO: NON GOVERMENTAL ORGANISATIONS

OECD: ORGANISATION FOR ECONOMIC COORPORATION AND DEVELOPMENT

OHSR: OFFICE OF HUMAN SUBJECTS RESEARCH

RAFI: RURAL ADVANCEMENT FOUNDATION INTERNATION

RVAC: REGIONAL VULNERABILITY ASSESSMENT COMMITTEE

SADC: SOUTHERN AFRICA DEVELOPMENT COMMUNITY

SEDCO: SMALL ENTERPRISES DEVELOPMENT CORPORATION

SL: SUSTAINABLE LIVELIHOODS

SLA: SUSTAINABLE LIVELIHOODS APPROACH

SLF: SUSTAINABLE LIVELIHOODS FRAMEWORK

SME: SMALL AND MEDIUM ENTERPRISES

UCLA: UNIVERSITY OF CALIFORNIA

UN: UNITED NATIONS

UNCDF: UNITED NATIONS CAPITAL DEVELOPMENT FUND

UNCED: UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT

UNDP: UNITED NATIONS DEVELOPMENT PROGRAMME

UNEP: UNITED NATIONS ENVIRONMENTAL PROGRAMME

UNOCHA: UNITED NATIONS OFFICE FOR COORDINATION OF HUMANITARIAN AFFAIRS

UNPD; UNITED NATIONS POPULATION DIVISION

USAID: UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

WCED: WORLD COMMISSION ON ENVRIONMENT AND DEVELOPMENT

WHO: WORLD HEALTH ORGANISATION

WFP: WORLD FOOD PROGRAMME

ZIMVAC: ZIMBABWE VULNERABILITY ASSESSMENT COMMITEE

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CHAPTER ONE

1.0 Introduction and Background to the Study

The study endeavours to investigate factors that have constrained the efficacy of diversification of livelihoods in improving household food security. Though the study was undertaken in Hurungwe district, it draws comparative examples from other countries in the sub-Saharan context in bid to ensure balanced understanding and analysis of the subject. In the study, limiting factors and challenges faced by rural households in improving food security through diversification in response to droughts and climatic variation are also analyzed.

The IFPRI (2002), notes that food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active healthy life. From the onset, the study recognizes that food insecurity can never be attributed to a single factor, but interplay of a multiplicity of context-dependent social, political and economic factors. Many factors advanced to explain Africa's chronic food insecurity include infrastructural deficits, gender inequality, soil quality, water scarcity, political instability, predominance of small-scale over large-scale production, shortage of inputs, climate variability, unfavourable agricultural policies, and international trade barriers that favour the developed over the developing world (Cooke and Downie, 2010:1; Mwaniki, 2005). This makes it necessary for any balanced discussion on food security in sub-Saharan Africa to pay attention to such issues and how they are interrelated as they affect food security.

Whilst smallholder agriculture production plays an important role in rural food security, Haggblade, Hazell and Reardon, (2007) argue that the traditional view that rural economies are purely agricultural is clearly obsolete as farming households across the developing world are earning an increasing share of their income from nonfarm sources. Drought has been cited as one of the major factors influencing diversification to nonfarm livelihoods. Both academics and development practitioners have identified the diversification of livelihoods as a key strategy in reducing poverty, increasing household incomes and

consequently improving food security especially in drought prone areas (Bryceson and Jamal, 1997; Little, Smith, Cellarius, Coppock, and Barrett, 2001). Despite the image of Africa as a continent of "subsistence farmers", nonfarm sources account between 40– 45% of average household income and seem to be growing in importance (Reardon, 1997). Governments and developmental organisations have been slowly migrating from food production alone as the solution to food insecurity in rural areas. It is worth noting that though there is consensus on the potential of diversification in increasing rural incomes and improving food security, most studies have been confined to exploring the common diversification patterns and determinants in rural areas with limited attention to the actual impact of such strategies on food security.

Building on the aforementioned, the study not only identifies patterns and determinants of diversification in Hurungwe but also assesses the impact of such efforts in relation to climate variability. Comparative studies from Zimbabwe and other sub Saharan countries are also shared to broaden understanding on livelihoods and food security. Diversification of livelihoods has been classified in several ways which can be summarized as:

- On the farm diversification through introduction of other crops on the farm, engaging in market gardening or small livestock and poultry production
- Off farm diversification which is basically limited to engaging in wage labour on other farms
- Non-farm diversification which entails households or individuals engaging in non-agricultural or farming activities which include cottage industries, petty trading etc.

The study uses the existing definitions of livelihoods and diversification to set a platform for study on diversification patterns in Hurungwe. Niehof, (2004) notes that diversification maybe a way of coping under stressful conditions such as drought or it may be undertaken to strengthen livelihoods and build capital. With a multitude of reasons why rural household diversify being context dependent, it is not possible to categorically claim that rural people's engagement in livelihood diversification strategies is either a sign of failing

livelihoods, or a sign of improving prospects for rural communities (Hussein & Nelson 1998).

As will be demonstrated, the major risk facing rural households in Zimbabwe is that of drought (Kinsey, Burger, Gunning, 1998:1), with food insecurity also closely hinged on political and economic developments in the country over the past few years. Mwaniki (2005:1) states that "the root cause of food insecurity in the South is the inability of people to gain access to food due to poverty". Food insecurity in Africa goes beyond availability, access and affordability to complex issues that encompass a wide range of interrelated economic, social and political factors (internal and external) (Clover, 2003:5). While the rest of the world has made significant progress towards poverty alleviation, Sub-Saharan Africa, continues to lag behind with the high prevalence of HIV/AIDS; civil war, poor governance; frequent drought and famine; and agricultural dependency on the climate and environment exacerbating the situation (Mwaniki, 2005). Some of these issues are also taken into account in detailed discussions on livelihood diversification in Hurungwe.

Specifically this first chapter outlines the research design for this dissertation. It provides an overview and background information on the magnitude, prevalence and documented impacts of droughts on household food security among rural households in Zimbabwe and Sub-Saharan Africa. Also outlined in the chapter, is my motivation for the study, the research problem and the key research objectives combined with a brief delineation of the research methodology and a chapter outline.

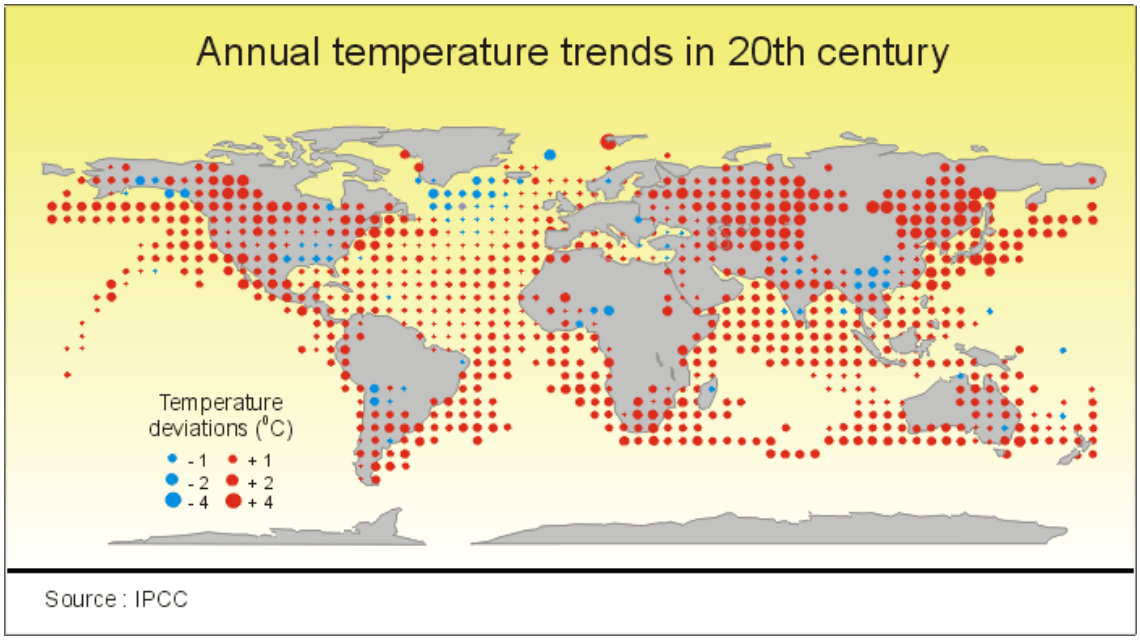
1.1 Background to the Problem

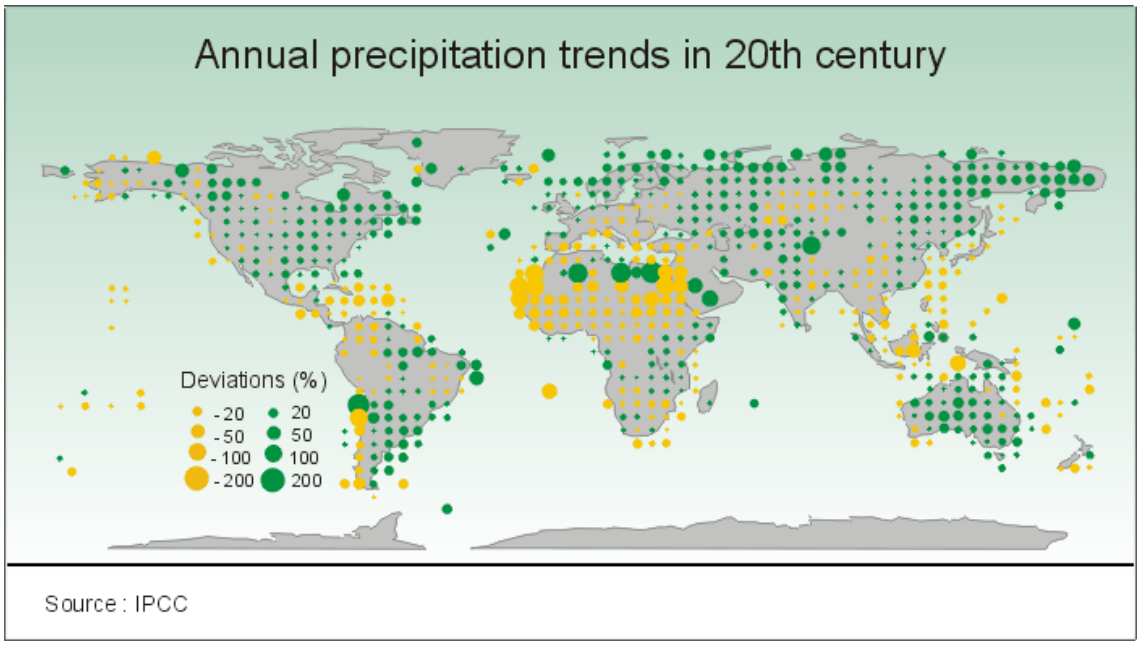
Droughts rank first among all natural hazards when measured in terms of the number of people affected (Obasi, 1994:1655). Droughts occur in virtually all climatic zones which includes high as well as low rainfall areas characterized by a reduction in the amount of precipitation received over an extended period of time, such as a season or a year. It is more pronounced when it occurs in potential high and medium rainfall areas; however, the most vulnerable regions are described as arid and semi-arid lands of the world, with those in Africa high on the list (Hisdal and Tallaksen, 2000:1). Its impacts are mostly experienced

by populations whose livelihoods are dependent primarily on natural resources especially in Africa.

Africa, where climate is a key driver of food security (Gregory, Ingram and Brklacich, 2005:2139), is among the continents vulnerable to droughts and climate change (IFPRI, 2010:3). Figure 1.0 reveals the observed trends in temperature and precipitation globally with Africa experiencing an aggregate 2 degrees Celsius increase in temperature in most parts. Precipitation trends are however mixed with West and North Africa experiencing negative deviations whilst other parts experiencing both increases and decreases in rainfall deviation.

Figure 1.0 Annual Temperature and Precipitation Trends in the 20th century





IPCC 2007b

It is of importance to note that, the study acknowledges the existence of many schools of thought on global warming and climate change. Computer models for predicting future temperatures and precipitation have in many cases yielded different results which have drawn fierce criticism on their accuracy. Despite this, given the cumulative nature of the climate process, the world cannot use a "wait and see" approach when deciding how to address the challenges brought about by the negative impacts of global warming.

One of the noted impacts of drought and climatic variation has been the reduction in agricultural yields in some areas by as much as 50% by 2020 (Below, Artner, Siebert S, Siebert R, 2010:1). However, Mubaya, Njuki , Mutsvangwa, Mugabe, Nanjad, Murewa, Dimes, Makuvaro, Munodawafa , (2010:2) further assert that climate variability is set to increase, characterized by extreme conditions in Africa. Despite contributing at least 40% of exports, 34% of GDP or more, up to 30% of foreign exchange earnings and 64–80% of employment (Hope, 2008), livelihoods and agricultural production in Africa among the rural poor which are sensitive to climate change are under threat (FAO, 2008). Populations in sub-Saharan Africa are at higher risk where livelihoods and 90% of staple food production come from rain-fed farming systems, 40% of all exports are agricultural products with crop production and

livestock husbandry accounting for about half of household income (FAO 1999:8, Rosengrant, Cai, 2002). This may mean that by the 2080s, climatic changes are expected to place 80–120 million people at risk of hunger of which 70–80% of these will be in Africa (Parry, Rosenzweig , Iglesias, Livermore and Fischer, 2004) consequently worsening the state of food insecurity and malnutrition. Therefore, smallholder agriculture may be considered as the most vulnerable sector to climate change and the consequent droughts (Nyong, 2005).

Southern Africa in particular, is expected to get drier and experience more extreme weather conditions, particularly droughts and floods. With the climate of Southern Africa recognized to be highly variable and unpredictable prone to extreme weather patterns such as droughts and floods (Waiswa, 2003; Kinuthia, 1997), Zimbabwe has also not been spared by climatic variations. Drought has been identified as a major risk facing rural households in Zimbabwe (Kinsey *et al.,* 1998; Mubaya *et al.,* 2011:2). Smallholder rural households whose source of livelihood is dependent on agriculture face enormous risks on income as a result of weather variability.

The Zimbabwe Meteorological Office reveals that annual mean temperature for Zimbabwe has increased by about 0,4 degrees Celsius between 1900 and 2000. Between 1950 and 1990, the number of days with minimum temperatures below 12 degrees Celsius has decreased whilst the number of days with maximum temperatures equal to or above 30 degrees Celsius has also increased. Rainfall data shows a decline by about five percent and extreme events are becoming more intense and of longer duration coupled with periodic shift in onset rains. Zimbabwe also experienced six warmest years on record since 1987 and an increase in the frequency of droughts since 1990 (90/91, 91/92, 92/93, 93/94, 94/95, 97/98, 01/02, 02/03, 04/05, 06/07) leading to a massive drop in crop yields in the country's agricultural sector. The country also experienced an increase in the frequency of floods and Cyclone-induced flooding which include Cyclone Bonita 1996, Eline 2000, Japhet 2003 and another in 2007. Future climate change projections for Zimbabwe indicate that the country is warming at the rate of 0,15 to 0,55 degrees Celsius per decade. Annual rainfall is

projected to decrease across Zimbabwe, such that by 2080 annual rainfall will average 5-18 percent below the 1961-1990 average of 634,8mm. Unganai (1996:144), in a study on historic and future climate change in Zimbabwe, confirmed that daytime temperatures over Zimbabwe have risen by up to 0.8 degrees Celsius from 1933 to 1993, which translates to a 0.1°C rise per decade. Precipitation has declined by up to 10% on average over the period 1900 to 1993, which is about 1 % per decade.

The aforementioned evidence places Zimbabwe among countries in Sub-Saharan Africa vulnerable to unpredictable extreme weather conditions such as droughts. In Zimbabwe, about 90% of crops are grown under rain-fed conditions with production for family consumption remaining paramount in the dry agro-ecological zones of the country (Chetsanga, 2000). Agriculture provides employment and livelihoods for about 70% of the population in Zimbabwe, and accounts for about 40–50% of the country's total export revenues contributing about 17% to the country's GDP (FAO, 2005a). Most farmers in rural areas rely on natural rainfall for their farming activities which renders them vulnerable to climate change (Nyambara, 2003:4). Rainfall variability and uncertainty surrounding its annual reliability have prompted communities in drought prone areas to adapt to dynamic weather variation through strategies which include diversification of livelihoods. Diversification has been put forward as one of the strategies households employ to minimize household income variability and to ensure a minimum level of income (Alderman and Paxson, 1992).

The study recognizes efforts by rural households to adapt to climatic variation and droughts with or without external support from government and humanitarian organizations. It seeks to assess the efficacy and contribution of livelihood diversification on household food security living in areas vulnerable to drought. This will be based on a study of rural households in Hurungwe District in the Mashonaland West Province of Zimbabwe whose livelihoods are climate dependent and consequently vulnerable to droughts and changing weather patterns.

1.2 Motivation for the Study

Rural smallholder farmers and communities in semi-dry agro ecological zones of Zimbabwe have always adjusted their behaviour in response to extreme weather events such as droughts (FAO, 2004). According to Nhemachena and Hassan (2007:2), although farmers have a low capacity to adapt, they have, however, survived and coped in various ways over time. But due to increased levels of poverty and unavailability of needed inputs on the market, most of the farmers have in recent years been unable to afford basic farm inputs. High quality seeds, organic and mineral fertilizers needed to replenish depleted soils, and simple water management systems that allow farmers to deal with erratic rains are largely beyond their reach. In addition, marketing, extension, and finance systems have become either unavailable or largely ineffective (Chikozho, 2010:6).

Through accumulated indigenous knowledge passed from generation to generation, farming communities have accumulated knowledge on weather patterns and how to cope with their impacts on the natural environment, livelihoods and lives (Onyango, 2011:3). Indigenous knowledge has formed a knowledge base and survival tool for adapting to extreme climate events and other natural hazards. However, faced with continued threat to agriculture, farming households are also increasingly resorting to selling of assets, reliance on social networks (including money lenders), eating of wild plants/fruits, animals/birds, turning to faith and church groups, government support (e.g., welfare), NGO support (e.g., food aid, cash for work), petty trading/hawking and temporary migration (including exchange, work, support) as major adaptation strategies against droughts (Osbahr, Twyman, Adger, David, and Thomas, 2010).

Given the key role income diversification can play in stabilizing incomes and alleviating rural poverty, governments in the South have become increasingly interested in promoting increased diversification (Petit and Barghouti, 1992). A number of studies in Zimbabwe on diversification and food security have centred on understanding of rural livelihood challenges and how households

diversify livelihoods to cope with these challenges (Mutenje, 2010), livelihoods and chronic poverty in rural areas (Bird and Shepherd, 2003), response of rural households to climatic risk (Kinsey, Burger, Gunning, 1998) with limited attention to the contribution of livelihooddiversification on food security. This means that room still exists for further research on the impact and contribution of livelihood diversification on food security among households struggling with frequent droughts in Zimbabwe.

Therefore my motivation to undertake such a study primarily stems from my experiences as a development practitioner in food insecure districts in Zimbabwe which include Hurungwe. I still wonder why despite years of non-governmental organizations and government investing resources aimed at increasing food security through improving agricultural productivity and diversification of livelihoods no significant impact has been noted. Limited information exists on the impact and efficacy of current efforts such as livelihood diversification on food security in response to drought which whose occurrence has been frequent in the study area. My wish is to generate findings that can inform strategies and efforts aimed at addressing household food insecurity in face of the increasing threat of droughts or rainfall variability.

1.3 Statement of the Research Problem

Many rural farming households in Zimbabwe rely on natural rainfall for their farming activities and are worst affected by changes in weather patterns (Nyambara, 2003:4). Commonly cited adaptation strategies and measures to improve food security include farm management and technology, diversification on and beyond the farm and government interventions in rural infrastructure. (Below *et al.,* 2010:5). Cropping practices that are often used to mitigate the effects of variable rainfall have included planting different crop varieties, using crop trash as mulch, planting drought resistant crops and a variety of low-cost water-saving measures. However, evidence on the ground shows complex challenges and barriers which undermine farmers' willingness and their ability to adapt (Boko, Niang , Nyong, Vogel , Githeko , Medany , Osmanelasha , Yanda, 2007:452).

Coping responses at the farm-level are being rendered ineffective in situations where droughts are more widespread and severe, leading to loss of seed stocks, biodiversity and draught power. This means farmers can only cope up to certain extent. Diversification into non-farm income sources is growing and is increasingly accounting for a large share of household income. In an analysis of household surveys from 1970s through the 1990s, Reardon, Stamoulis, Balisacan, Cruz, Berdegue and Banks, (1998) revealed that non-farm income contributes at least 42% in Africa, 40% in Latin America and 32% in Asia to total household income. Ersado (2003:3) points out the positive relationship between non-farm diversification and household welfare revealed in many studies have added to greater recognition and promotion of off-farm employment in rural areas among development agencies and NGOs.

Given that adoption of alternative livelihoods is highly context sensitive, the study will focus on Hurungwe District which lies in one of prime farming regions of Zimbabwe. Rural household in the area continue to struggle with food insecurity primarily caused by extreme droughts. Among the measures promoted by various development actors over the years has been diversification of livelihoods. However limited information exists on the extent to which livelihood diversification has affected household food security.

It is in this regard that the main problem in this study is to determine **the role of livelihood diversification in promoting household food security in Hurungwe,** which will be useful in providing recommendations on how diversification can be effectively promoted to improve food security in drought prone areas. This will be investigated with particular reference to Hurungwe District, and will draw out experiences from rural households in the area whose livelihoods though predominately farm based are increasingly being diversified in response to droughts. The study will be useful in informing rural development actors on how to effectively assist households in drought prone areas mitigating the effects of droughts and ensure increased food security through diversification of livelihoods.

1.4 Research Objectives

In light of the mentioned research problem, the objectives for the study are:

i. To identify and analyze predominant livelihood diversification strategies in the Hurungwe community

ii. To assess the contribution of livelihood diversification on household food security

iii. To identify and study factors which may strengthen or limit the efficacy of livelihood diversification on household food security

iv. To recommend appropriate interventions and approaches for rural development practitioners on the effective strengthening of livelihood diversification as an adaptation strategy against unpredictable weather patterns.

1.5 Limitations of the Study

The study is limited to Hurungwe district for two reasons, namely;

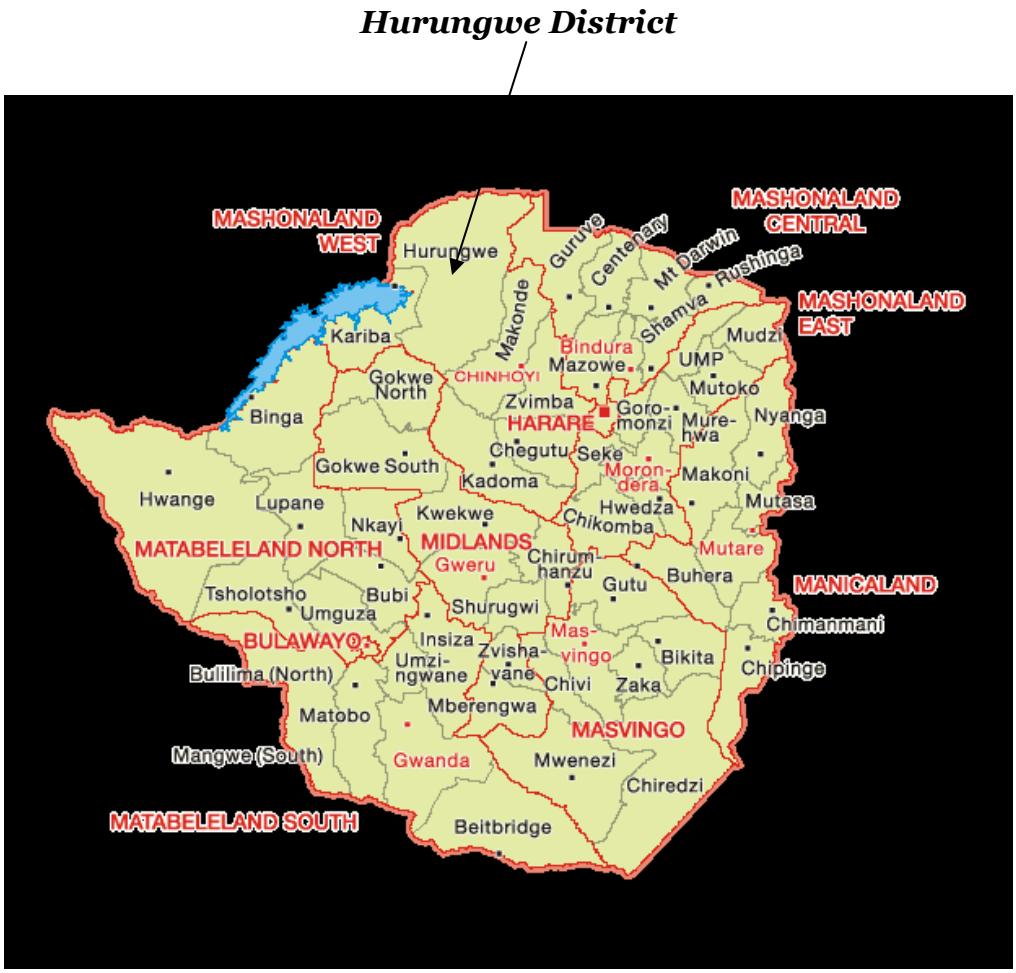
i. Hurungwe District is located in the north western part of the country about 200km from Harare the capital. The district has a population of 309,821 inhabitants divided into at least 26 sub units called Wards covering an area of 19,200 square kilometres. Lying in farming regions II, III and IV characterized by rainfall amounts ranging from 500-1000mm, the district also experiences periodic seasonal droughts, prolonged mid-season dry spells and unreliable starts of the rainy season. Wildlife and tourism activities are common in the drier northern parts of the district. Crop production in most areas is subsistence. However, maize, tobacco, cotton and sugar beans, sorghum, groundnuts and barley in addition to animal husbandry (i.e. poultry, cattle for dairy and meat) are produced on a semi-intensive scale. (ZIMVAC, 2010).

   Due to the increased prevalence of droughts in the area, significant attention by government and NGOs has been directed towards improving food security through livelihood diversification. Migration to non-farm

livelihoods such as petty trading, vending, micro-enterprise and casual labour is increasingly becoming common due to the frequency of droughts over the past few years. By virtue of its geography, climate and socio-economic set up, the district therefore provides an adequate environment for such a study.

ii. The researcher is very familiar with the district (see Figure 1.1 Zimbabwe District Map) and has worked there as field officer and therefore understands the context, language and culture of the area. This will be useful in interacting with community members and households in the area**.** The fact that community members in the area have been frequent beneficiaries of food security related support from NGOs enables the study to explore the impact of such interventions. This will enrich understanding of the role played by and contribution of livelihood diversification on food security.

Figure 1.1 Zimbabwe District Map



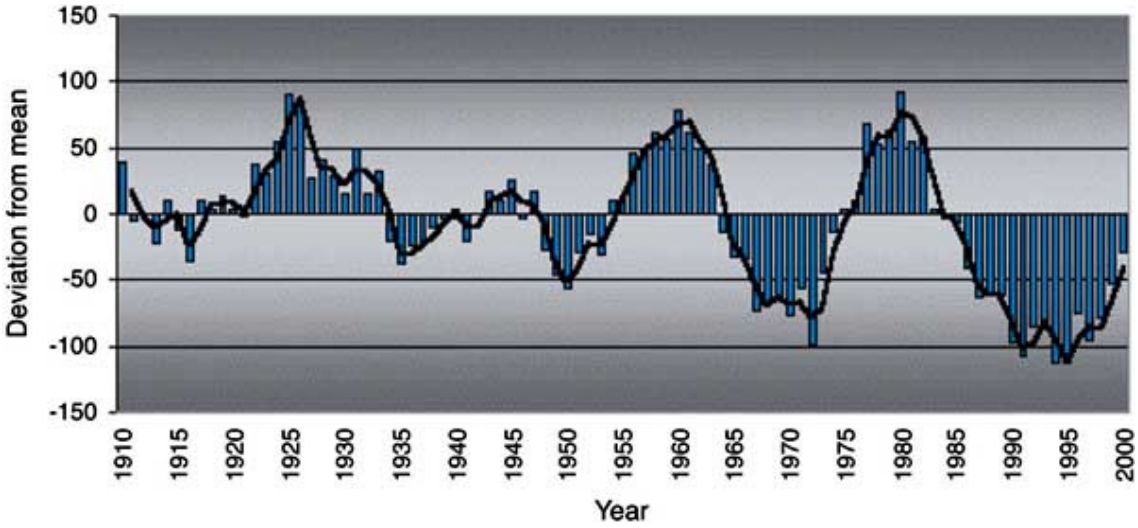
The researcher also recognizes that some studies have been undertaken focusing on the identification of major livelihoods in areas such as Hurungwe under the government commissioned ZIMVAC 2010 Assessment. This includes Chimhowu (2002), whose study also investigated household responses to drought in the marginal areas of Hurungwe. These provide a platform for this study as it further investigates the contribution of livelihooddiversification as a response to drought.

1.6 Significance and Relevance of the study

Zimbabwe as a country has not been spared by extreme weather patterns, rainfall variation, socio-political unrest, HIV and AIDS which all have had a toll on food security at household level. For example, Figure 1.2 Zimbabwe National Rainfall Deviation from 1900-2000 shows how rainfall deviation patterns in Zimbabwe since the year 1900. The graph depicts an increase in rainfall

deviation since 1985 in the country. Therefore, the multiplicity of factors causing and exacerbating food insecurity require closer collaboration among community members, development actors and policy makers at all levels. This means efforts to ensure improved food security through strategies such as livelihood diversification require a mix of other complimenting policies and strategies at national and local levels.

Figure 1.2 Zimbabwe National Rainfall Deviation from 1900-2000



Zimbabwe Meteorological Department 2001

The study acknowledges the existence of studies which have downplayed the relevancy and efficacy of livelihood diversification as a potential strategy to ensure food security through promoting small holder food production (Matshe, 2009). In contrast, the purpose of the study is also to demonstrate the potential role that diversification of livelihoods can play in improving incomes and consequently food security in areas where agricultural production is low. Instead of categorically claiming that diversification of livelihoods will solve rural food insecurity, the study promotes it as complementary to existing efforts.

The study is meant to build on existing knowledge on livelihoods diversification and food security in Sub-Saharan Africa. Furthermore, its importance is demonstrated in a number of ways which include the following:

- Contribute to the existing body of knowledge in development theory and practice on the role of livelihood diversification and food security. In many studies, greater emphasis has been on diversification patterns, causal factors and determinants; the study builds on these but deliberately focuses on the contribution of livelihood diversification of food security in response to droughts. This will help in understanding the extent to which diversification has been effective, obstacles to diversification and ways in which development players and governments can further tap into its potential. Thus, clarity on the community perceptions and expectations will better inform development planners on how to ensure food security through diversification.

- Secondly, communities participating in the research were brought together to further explore the challenges confronting them in addressing food security, collectively reflect on practical steps and initiate action aimed at improving food security through diversification. This also encouraged cross fertilization of ideas among community members making them better able to engage development organisations in their areas.

- As the country emerges from the socio-economic crisis that significantly disrupted livelihoods, the study will contribute towards informed dialogue on how to support the recovery of rural livelihoods and building resilient food secure rural communities in Zimbabwe.

Therefore, the study is significant in that it generates findings, lessons and recommendations on how diversification of livelihoods can be effectively harnessed by government, development agencies to improve food security among rural communities. It is hoped that this will influence programmatic approaches and interventions aimed at reducing poverty, improving incomes and ensuring greater access to food in rural areas.

1.7 Brief Description of Methodology

The study was undertaken in Hurungwe District which lies 200km from Harare, the capital city. Due to constraints in time and resources, a cross-section of the

inhabitants in the study was selected through purposive and random sampling techniques. This was meant to ensure balanced views. Purposive sampling (Leedy, 1993:89) was used to select two wards out of twenty six (26) wards in the district as well as selection of 72 men, women and youths who were participants in FGDs. These were drawn from about eight villages in the area whose livelihoods entailed farming, cottage industries, casual labour, tobacco farming, petty trading/vending, small livestock, gold panners and vegetable gardening in the area.

Key informant interviews involved the participation of eight community members involved in non-farm livelihoods, two key NGO representatives (World Vision, Lead Trust) and two government officials (agricultural extension officers) from the Department of Agriculture working in the study area. Proximity, accessibility and availability of the respondents to the researcher played a major role in the selection of this methodology (Magomero, 2004). Through purposive sampling the study was able to select participants for the study who are aware of the subject (Lynn, 2004:431) as well as promote focused and informed responses (Creswell 2002).). A detailed presentation on the methodology is found in Chapter 6.

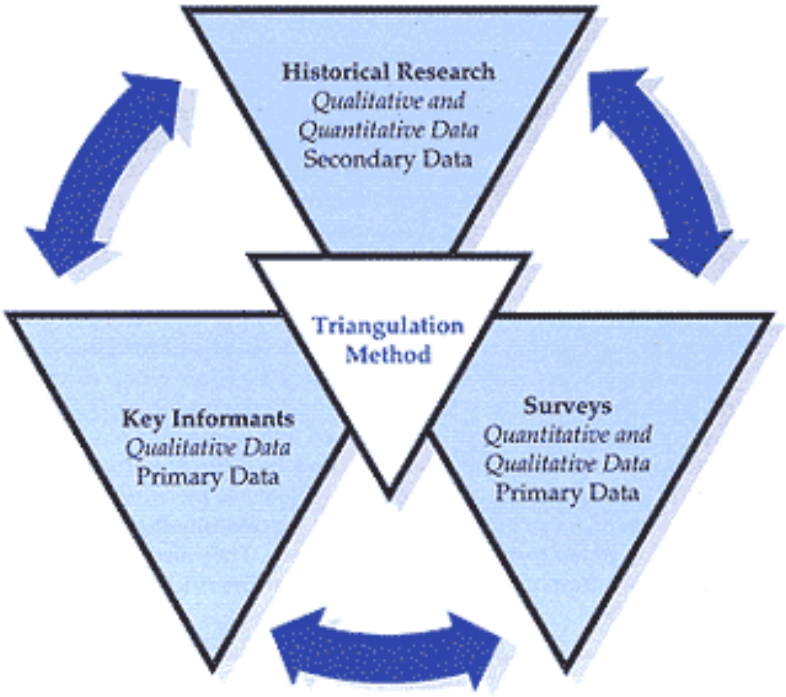
Several studies on rural livelihoods in Africa that assert that livelihoods diversification away from dependence on food crop production appears to be key to reducing poverty (Ellis, 1998, Osbahr, Twyman, Adger, David, and Thomas, 2010, Schipper, 2007) have been recognized in the study. It is building upon such studies that the researcher also extensively reviewed and analyzed other academic and scientific sources in addition to employing a qualitative data collection method premised on action research.

Through action research methodology, the research sought to actively involve research participants in the research process, such that their awareness levels are raised and triggering commitment to utilize research results in bringing about desirable social change (Scoones and Thompson, 1993; Stringer and Genat, 2004). The choice of action research is also based on the need to encourage and increase the participants' understanding as well as stimulate

follow-up actions to improve their situation. Within the framework of action research methodology, specific methods which were used in a complementary manner included reviewing of relevant literature, focus group discussions (FGDs); key informant interviews (KIIs) and observation where appropriate.

Due to the qualitative nature of the study, the researcher had to cross-check all information for accuracy, reduce bias through triangulation, and ensure credibility, dependability and reliability of the information (Stringer and Genat, 2004). Triangulation is defined as "comparing different kinds of data (quantitative and qualitative) and different methods (observation and interviews) to see whether they corroborate one another. This form of comparison, called triangulation, derives from navigation, where different bearings give the correct position of an object" (Silverman 2000:156). Figure 1.4 provides diagrammatic description of triangulation and how it combines key informants, surveys and secondary research to validate research data. Therefore in line with Flick (2006:229), triangulation was employed as a combination of multiple methodological practices which added rigour, breadth, complexity, richness and depth to the inquiry.

Figure 1.3 Triangulation Method for Cross Checking data



University of Illinois 2006

1.8 Chapter Outline

The Study is organized into seven chapters as outlined below:

Chapter 1: Research Outline

This chapter will provide an overall introduction and background to the study by provide an overview how climatic variation such as drought has contributed to food insecurity in sub-Saharan Africa especially Zimbabwe. It also accord attention to livelihood diversification which has been identified as one of the strategies adopted by households and promoted by development actors in addressing the never ending food insecurity problem. To provide a clear premise for the study, a statement of the problem is also provided alongside the researcher's motivation for the study. The chapter further highlights limitations, significance and objectives of the study. The last section is a summary of the selected methodology and a brief rationale for the choice of methodology.

Chapter 2: Understanding Theoretical Perspectives and Some Key Issues on Food Security and Development

The chapter will provide a theoretical review on food security as concept, how the understanding of food security has evolved over time. Existing definitions of food security, its determinants, causes and constraints are also reviewed together with analysis on development theory and how it relates to food security. With a particular focus on sub Saharan Africa, the chapter also draws examples on what measures can be instituted to improve food security at a micro level. The objective is to set a background for the detailed review of livelihoods and livelihood diversification in the succeeding chapters.

Chapter 3: Understanding Climate Change and future of Smallholder food production in Sub-Saharan Africa

The chapter recognizes the frequent reference to smallholder agriculture as a key to ensuring food security among academics and development practitioners. It closely focuses on the concept of smallholder agriculture and investigates its

future through analysing challenges and impediments. By expanding on food security and the role played by smallholder agriculture, the chapter draws examples aimed at properly positioning smallholder agriculture in the food security debate.

Climate Change and drought have been cited as interrelated aspects threatening food security. The chapter further investigates climate change as a concept, providing definitions and relationships with drought. Furthermore, attention is given to investigating the impact and implications of climatic variation on livelihoods and food security, how rural communities can adapt and mitigate its impacts. The chapter culminates by building a case for livelihood diversification as one of the ways of supporting adaptation to climate change.

Chapter 4: Responding to Food Insecurity: Investigating the Contribution of Livelihood Diversification to Household Food Security

Having provided a theoretical framework for the food security debate, the chapter builds on this by providing definitions and investigating theoretical debates on livelihoods and livelihood diversification. The review of current debates and theories on livelihoods and general determinants of diversification draws examples from several countries. This is meant to provide a deeper insight into these concepts forming a theoretical basis for the study as well as identification of gaps that the study can contribute to filling.

Chapter 5: Food security and Livelihoods in Zimbabwe

With a particular focus on Zimbabwe, a contextual analysis on livelihoods and food security is shared in this chapter. It includes an overview of the policy framework, institutional set up and general constraints to food security in Zimbabwe. The chapter also reviews some specific studies on livelihood diversification in Zimbabwe as well as identify gaps which the study will attempt to fill.

Chapter 6: Research Methodology

This chapter provides detailed information on the research area to enable contextual appreciation of the findings. Attention is given to providing details of the methodology, its limitations and the rationale behind this choice of methodology. In summary the chapter elaborates the research process and techniques employed.

Chapter 7: Research Findings and Discussions

This chapter provides a summary of the research findings and discusses key issues emanating from the findings. It also recaps the objectives of the study and indicates to what extent these were addressed in the study. Community and key informant recommendations on rural livelihoods are also discussed.

Chapter 8: Recommendations and Conclusion

The chapter will climax the research through an enumeration and elaboration of recommendations for communities, policy makers and developmental organizations on how to effectively bolster livelihood diversification strategies in an effort to reduce food insecurity. In addition a section is devoted to outlining proposed areas for further research.

CHAPTER TWO

UNDERSTANDING THEORETICAL PERSPECTIVES AND SOME KEY ISSUES ON FOOD SECURITY AND DEVELOPMENT

2.0 Introduction

From the onset, this study recognizes that the notion of food security has been in existence for a long period of time, as human communities have always depended on access to food. Over the years, there has been a gradual evolution in the understanding to incorporate different elements. Smith, Davies, Evans, Jaspers, Swift, Young, (1992) point out that about two hundred definitions of the term have been advanced which all consider food security from slightly different viewpoints. This diversity in understanding indicates that food security is a highly complex issue.

Food insecurity continues to be a threat to the wellbeing of millions of people especially in the South. Available data on food security indicates that the total number of undernourished people in the world was estimated to be 925 million in 2010 with developing countries accounting for 98 percent of the world's undernourished people (FAO, 2010). The situation is compounded by ecological limitations in the environment to sustain increased population pressures especially in the South. Common strategies among different nations to reduce hunger and tackle food insecurity have been guided by the Millennium Development Goals (MDGs). These among other things also focus on halving the proportion of people in the world who suffer from hunger by the year 2015. MDGs endeavour to ensure adequate food production, maximum stability in the flow of food and guarantee access to available food of those in need. However, as will be demonstrated in this study, food security is a complex issue which goes beyond food production, to encompass sustainable livelihoods that take into ecological and environmental considerations.

In this chapter, efforts are made to review how food security thinking has evolved over the years by critically discussing three paradigm shifts identified by Maxwell (1996). Attention is also placed on reviewing development perspectives i.e. modernisation and economic growth, dependency, growth with equity,

alternative development, and sustainable development paradigms. This is done in an effort to see how development thinking can be tied to food security. Commonly agreed definitions and related key components are also examined in addition to reviewing various theories on food security. The roles of agriculture production and biotechnology in response to increased population growth are discussed as emerging issues in the food security debate. This debate culminates in an argument for an approach that is contextual but focusing on sustainable livelihoods rather than food production alone. Throughout the chapter, the potential role of livelihood diversification in ensuring food security in a globalized and market oriented society is suggested in line with the objectives of this study. The remainder of the chapter focuses on understanding dimensions and drivers of food insecurity which are used as a foundation in developing robust strategies that take into account accessibility, availability, and adequacy dimensions.

2.1 Review of Development Perspectives and Food Security Thinking

The concept of development is elusive and difficult to define, since it is associated with a wide range of definitions and interpretations (Todaro and Smith 2006: 15). Like food security, development perspectives have been changing over time although these have in one way or the other carried the legacies of old views (Taabazuing 2009). When the term development was first introduced, it was considered an economic term and generally perceived to be synonymous with economic growth (Hawi 2005:2). According to Preston (1996), development theory can be summarized as a conglomeration of theories about how desirable change in society can be achieved. Over the years, the debate on development has seen different perspectives dominating at different periods in time.

There is general agreement that over the years, development thinking was triggered and greatly influenced by the industrial revolution in Europe and North America in the eighteenth century (Chang 2003). The concept of development popularized by US President Harry Truman in 1949 implied that underdeveloped parts of the world were expected to move along the same track of the industrial nations to attain development (Sachs 1992). Many countries consequently embraced this thinking but later found it as an elusive goal of

'development'. Hence, this has seen the emergence of various theories and debates on development which are highlighted below.

2.1.1 Modernization and Economic Growth Paradigm

After 1945, following the industrial revolution in Europe and North America (Crafts and Harley 2000), Third World countries were expected to imitate processes of modernizing traditional values and production systems based on Western economic experience. These values entailed capitalist industrialization, social differentiation, individualism and liberal democracy (Okolie 2003: 236-7). Modernization theory implied the need for modern transformations of social life where poverty is perceived as responsible for making poor countries remain undeveloped. This is based on the assumption that for a country to develop, it must first modernise, advance in science and technology which would in turn lead to an increased standard of living (Weber 1973).

According to Rostow (1960) all societies must pass through a linear, logical and well defined sequence of five stages of economic development. The first stage is that of low level of technological knowledge and low per capita production characteristic of a traditional society. The second stage entails removal of many of the growth-inhibiting features of traditional society paving way for scientific insights necessary for agricultural expansion and industrial manufacturing processes as pre-conditions for "take-off". The third stage is the "take-off" to self-sustained growth where net investments and savings rise sharply resulting in industrialization (Harrison 1998). In the fourth stage modern technology is adopted and the economic structure shows continuous changes as older industries stagnate and make way for new ventures. The fifth stage involves high mass consumption, where consumption patterns shift towards services and durable consumer goods.

Whilst Rostow's conceptualisation of development sounds logical it is not without flaws. Firstly, I criticize the assumption that all societies need to pass through a prescribed linear path towards development as it ignores contextual differences and diverse development cultures. Rostow fails to provide exhaustive examples and does not clearly explain how transition from one stage to the next takes place which makes practical application of his theory quite

problematic (Todaro and Smith 2006). Secondly, the theory implies that development is equated with westernization where western values are considered as superior to others, which is not the case as every culture has positive values. My other concern is that this view implies that tradition and culture are stumbling blocks to development which means countries in the South should replace traditional values like communalism and harmonious living with values of modernization such as rationality, industrialization, competition, maximization of production. Therefore, the modernization theory is too prescriptive based on western ideologies which do not take into account the differences in cultures, as well as the quality and quantity of resources in various countries which can influence development in different ways.

Whilst I strongly agree that economic growth is vital for development, it does not address other important factors affecting development such as poverty, unemployment, human rights and social stability (Todaro and Smith 2006). More importantly, placing emphasis on the pursuit of individual interest where capital is concentrated in the hands of a few in many cases has been a recipe for social unrest, instability and over-exploitation of the environment. Pursuing the goal of industrialization at the expense of the environment robs future generations of their benefits and privileges from the same environment**.** Sachs (2002: 18) noting the weaknesses in this theory, categorically states that "many of its glorious achievements are actually optical illusions in disguise". By failure to fully take into account the global situation and external influences that could limit the ability of a particular society to develop (Haines 2000: 38); it glosses over critical structural impediments in existence among countries in the South. Context specific issues relating to colonial legacies, challenges of globalization, internal governance processes, increasing poverty levels and population pressures are some of the factors that need to be brought into the discussion on development.

2.1.2 Dependency Paradigm

The dependency theory of underdevelopment formulated by a number of Latin-American economists and social scientists in the 1960s is informed by Marxist social thought on capitalism. The theory basically suggests that the underlying causes of Third World underdevelopment can be traced to the historical

exploitation of Third World resources by the industrial western world (Burkey 1993; 28; Madziakapita 2003: 88). It is argued that neo-colonialism and underdevelopment of the Third World are attributable to unfair international trade agreements and an imbalance in economic and political power (Madziakapita 2003: 90). In other words, there is need for development strategies of self-reliance, minimizing links between Third World countries and the world economy through import substitution, state intervention and sub-regional integration.

The dependency theory has been criticized for failing to construct its own theory of development, but rather putting too much emphasis on reacting to external forces as the cause of underdevelopment (Hettne 1996). The theory pays too much attention on why and how development has been elusive in some countries without equal attention to suggesting a more holistic alternative. Secondly, given developments in countries such as Zimbabwe and other communist states, I agree with Burkey (1993: 29) and Madziakapita (2003: 90) that state intervention in many cases has led to paralysing bottlenecks. Many governments in the South struggle with resource constraints, which means state intervention, may also rob them of the resources and opportunity to focus on other critical issues affecting the population. Countries in the South, whilst recognizing the risks associated with globalization should rather seek ways to take advantage of opportunities brought improved communication, regional integration and free trade to develop their economies.

2.1.3 The Growth with Equity Paradigm

Also known as the reformist development or basic needs development approach, it emerged in the early 1970s seeking ways to mitigate the harmful effects of modernization theory through balancing economic growth together with social equity (Haine 2000). Implicit in this thinking is the recognition that unequal access to natural resources or unfair distribution of these will keep people trapped in poverty. Income distribution to poor segments of the society was consequently promoted in an attempt to eradicate poverty through improving the income earning opportunities for the poor and their access to basic goods and services whilst promoting non-material needs like participation, cultural

identity and a sense of purpose in life and work (Gary 2002). This approach also promoted labour intensive methods in export-oriented industries goods in developing countries (Fair 1982; Haine 2000). One obvious criticism on this approach is that despite being improvement on classical growth-led development, it assumes that those driving economic growth will be willing to share the benefits of such growth with the poor. Whilst the intentions and motives behind this thinking are clear, it offers no clear way of how growth with equity can be ensured and realized in a world where self-interest is championed through capitalism.

This paradigm is closely tied to the concept of people-centered development, which places emphasis on economic justice, poverty reduction and social transformation (Todaro and Smith 2006: 16). Korten (1990: 67) defines people-centred development as "a process by which the members of a society increase their personal and institutional capacities to mobilize and manage resources to produce sustainable and justly distributed improvements in their quality of life consistent with their own aspirations."

People centred development goes beyond micro-level to macro and global issues such as the need to reform and examine global governance issues. By placing emphasis on poverty reduction, equity and employment it improves on the narrow concept of economic growth, but fails in confining development to be only about human beings. Since human beings exist alongside other creatures, there is need to shift from people-centeredness to viewing the world or all life as a complex, integrated "living whole", of which man is part (Reason 1988). Based on this, my view is also that a thorough understanding of the inter-relationships between different human beings, and between human beings and other creatures, should be at the core of development planning. Human beings, other creatures and the environment should be seen as interdependent whose wellbeing and happiness lies in mutual coexistence which will strengthen a culture of responsibility in exploitation. It will also facilitate striking a balance between development objectives and preventing over-exploitation of the environment and conflicts over natural resources.

2.1.4 Alternative Development Paradigm

During the early 1970s, mainstream development began to gradually move away from the preoccupation with economic growth towards human development which is people-centered and geared towards the satisfaction of needs, endogenous and self-reliant and in harmony with the environment (Pieterse 1996). The debate shifted to understanding how development should take place rather than how development actually takes place (Taabazuing 2009:69). Key features of the alternative development paradigm included being geared towards meeting both material and non-material needs (need oriented), built on local knowledge and practices (endogenous), built on internal strengths, potential and resources (self-reliant), rationally utilize the resources of the biosphere (ecologically sound) and promote the establishment of a social order where there is equity and opportunities for people to participate in issues that affect them (Burkey 1993: 31; Madziakapita 2003: 97).

In other words, the approach ignited the need for a transformation of institutions and value systems to reflect social justice, inclusiveness and environmental integrity (Korten 1990 cited by Madziakapita 2003: 98). It viewed the world as organic, holistic and ecological which is an indivisible, dynamic with interrelated parts (Haverkort 2002).

Woven in the alternative development perspective is a call for development processes that are contextual instead of adopting a 'universal' development paradigm. As opposed to globalization and modernist hegemony, the approach calls for a local approach to development that preserves natural and biological resources without diminishing cultural diversity. The call for taking into account the context in which development takes place is refreshing as it departs from the traditional view that development solutions are custom made and imported from other contexts as a replacement. Such an approach in my view dis-empowers communities and makes them dependent on borrowed approaches which are in most cases unsuitable for the contexts.

Though very little attention has been paid to the contextual understanding of development among development thinkers, the study by focusing on the

contribution of livelihooddiversification and food security with particular reference to Hurungwe hopes to make a contribution in in this area.

2.1.5 Postmodernism Paradigm

In a 1996 article, Simon Maxwell, after discussing the ideological shifts in the food security agenda argued that these point to out that flexibility, diversity and perceptions of local strategies reflect a movement toward postmodernism in the intellectual world. According to Maxwell (1996: 160), postmodernism is a rejection of "positivist, scientific methods of inquiry in the social arena," the empirical tests that are part of these methods, and the metanarratives (broad, overarching explanations) that result from such approaches. Postmodernism, focuses instead on discourse and language in a manner that emphasizes subjective interpretation at the local level. Therefore, postmodernism is a challenge to what he calls "many accepted ways of looking at the world" (Maxwell, 1996:161). Postmodernism employs deconstructivist tactics with three related parts i.e. influencing food security studies away from overarching metanarratives of insecurity and toward a consideration of how insecurity takes shape in a given context, secondly, the loss of metanarrative means that food security approaches must move away from top–down planning and toward means of enhancing the choices available for the local negotiation of food insecurity and lastly, food security approaches will have to draw upon different fields and intellectual schools for new ideas and approaches (Maxwell, 1996: 161-163).

Table 2.0 provides an overview of the differences in the modern and postmodern approaches as they relate to the food security discourse.

Table 2.0 Modern and Post Modern Currents in Development

	Modern	Post-modern
Underlying reality	Simple, uniform	Complex, diverse
Objectives	Growth	Development
	Preoccupation with macro	Preoccupation with micro
Research approach	Measure	Listen
	Survey	Participatory Rural Appraisal
	Reductionist	Holistic
	Deduction	Induction
	Abstract models	Complex reality
	Aggregate	Disaggregate
Planning approach	Plan	Enable
	Model	Interact
	Top-down	Bottom-up
	Centralize	Decentralize
Implementation	Blue-print	Process
	Role culture	Task culture
	Standardization	Flexibility, innovation

Maxwell (1996)

This means the key words in postmodern thinking are deconstruction, indeterminacy, diversity, interpretation. Rosenau, (1992: 8) quoted in Maxwell (1996) summarizes that:

"Post-modernists rearrange the whole social science enterprise. Those of a modern conviction seek to isolate elements, specify relationships and formulate a synthesis; post-modernists do the opposite. They offer indeterminacy rather than determinism, diversity rather than unity, difference rather than synthesis, complexity rather than simplification. They look to the unique rather than causality, and to the unrepeatable rather than the re-occurring, the habitual or the routine."

In light of this, Maxwell argues that the paradigm shifts in food security thinking are a reflection of how postmodernism is gradually being embraced in thinking in food security. Preoccupation with local perceptions, knowledge and strategies, as well as the use of participatory research methods, is characteristically post-modern (Maxwell 1996:161). However, post modernism has not been without criticism. Carr (2006:18) describes Maxwell's work on identifying and tracing connections between postmodern thought and food security as a provocative and preliminary, step toward creating a postmodern food security. He claims that, Maxwell glosses over an enormous, heterogeneous

body of thought under a single heading, “postmodernism”, and under a few general trends. His thin description of postmodernism does not address why many parts of postmodern thought reject metanarratives and focus on the analysis of discourse.

I also agree with Alcock (2009) that the third shift which Maxwell highlights from objective to subjective indicators is based on his own normative beliefs than evidence from official literature. In his work, Maxwell quotes earlier publications of his own work in which his definition incorporates the ‘subjective dimension’ of food security (cf. Maxwell, 1988).

Secondly, by ‘deconstructing’ the term ‘food security’ and replacing it with a new construction - a post-modern view of food security, Maxwell, argues that this should help to sharpen programmatic policy and bring theory and knowledge closer to what he calls ‘real food insecurity’ (1996: 156). This reconstruction, when looked at closely reproduces the kind of technical, managerial set of solutions which characterise the need for definitional certainty that he initially seeks to avoid (Alcock 2009:13). In other words, whilst trying to run away from a more prescriptive understanding of food security definitions, Maxwell finds himself in a situation that justifies and entails the need for a common definition on food security.

In my opinion, Maxwell’s emphasis on replacement of global/national food supply and production by a new concern for the household/individual food security is simply an addition to the discourse that confirms the complex and dynamic nature of food security. The subject of food security continues to be shaped in academic and technical circles with the food insecure themselves being spectators. Put bluntly, postmodernism does not propel food security past its current conceptual treatment; it neither replaces food security understanding but rather complements it.

2.1.6 Sustainable Development Paradigm

The concept of sustainable development was popularized after the publication in 1987 of the Brundtland Commission's report on the global environment and development (Redcliff 2003). Given the increasing poverty in the South,

coupled with environmental degradation despite several years of development efforts, triggered concern in the 1980s for a connection to be made between the environment and development (Todaro and Smith 2006). According to Bartelmus (1994) sustainable development is development that maintains a particular level of income by conserving the sources of that income. This places emphasis on conserving natural resources, contrary to the traditional view of development that is based on exploitation of natural resources for increased income levels. An interesting definition by Pearce (1986), suggests that sustainable development is a development path that does not make people better off today at the expense of future generations. Put differently this implies "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" Brundtland Commission (WCED 1987:43) cited in Sneddon *et al.,* (2006: 256).

It is of importance to note that the paradigm has diverse interpretations relating to development and ecological aspects which should not be simplified. Various strands of sustainable development have emerged over the years. Prominent among these are the technocratic management view, the populist view, political ecology, deep ecology and ecofeminism (Carley and Christie, 1992; Taabazuing 2009:73).

I share the same criticism with Redclift (2006) that Brundland's conceptualization of sustainable development over emphasizes the needs of human beings at the expense of other living things instead of striving for harmony between human beings and other living creatures. It ignores the fact that because the needs of any society keep changing with time, it may be difficult to predict the needs of future generations so that the current generation will be informed about how to protect such future needs (Redclift 2006). In other words, because needs are defined differently in different cultures and change over time, it is difficult to have universal and predictable needs that must be addressed for future generations. It is quite apparent that sustainable development ignores culture-specific definitions of sustainability in favour of a rather universal and exclusive system of knowledge (Redclift 2006).

2.1.7 Populism and Sustainable Development

Proponents of the populist approach build on sustainable development thinking to argue for grassroots mobilization, rather than technological and efficiency-based management as key to sustainable development (Taabazuing 2009:77). According to Trainer (1990: 199-201) some of the key features of the populist view are that it starts at grassroots levels ensuring availability of resources so that people can determine their own priorities. It out rightly rejects affluence as a goal for development but pays more attention to social, environmental and cultural development problems. More importantly it endeavours to promote maximum economic self-sufficiency and minimum dependence on external inputs.

This means proponents oppose the growth-centred models of development as well as recognizing the importance of indigenous knowledge in the search for sustainable development (Taabazuing 2009). In my opinion, this view is quite shallow and not fully elaborated as it deliberately ignores the dominant pressures of modernization values in the wake of globalization. Its narrow focus on grassroots and silence on globalization cast doubt upon its ability to effectively promote environmental issues in a sustainable manner. The challenges and opportunities brought about by globalization necessitate the need for more dynamic and well thought development paths that minimizes the other whilst building on the others.

From the above mentioned perspectives on development, I do not subscribe to either of them in isolation of others but argue for complementary use of these approaches to development enable us to "overcome past shortcomings and meet changing perceptions or priorities…" Simon and Narmna (1999: 271). My view is that at the root of development theory should suggest robust and dynamic ways to tackle inequality and poverty (Sidaway 2002), promote context specific approaches that are environmentally sustainable and compatible with local cultures. In this regard, there is no need for alternatives but more innovative approaches to integrate the various views on development that place people and environmental sustainability at the core. Whilst I agree that over dependency on western perspectives to development can be detrimental to the much needed

local development, one should not out rightly reject western perspectives but seek to harness positive elements from them. Living in a globalized environment, development can never be in isolation of western civilisation and perspectives as they continue to shape our way of life. Attempts to try and halt the influence of western values and way of life are idealistic in the current context as they have deeply penetrated local communities.

Taking this understanding in the food security debate, my argument is for context based approaches to food security that go beyond food production to creating livelihood strategies that improve access to food through reduction of poverty and inequality. With the evolution in developmental thinking, food security is increasingly being seen as developmental issues as demonstrated by the emphasis on access through livelihoods rather than food availability. With increased urbanisation, population growth, water scarcity and numerous other developmental challenges that impact on food security, the link between development, livelihoods and food security is even stronger.

2.2 Evolution of the Food Security concept

After World War II concerted efforts at an international level were put in place to paying special attention to global food insecurity. This saw the creation in the 1940s, of the Food and Agriculture Organization (FAO), with the purpose of organizing and strengthening international efforts in food-related matters. In 1974, this organization convened the first World Food Conference, where leaders agreed to collaborate and intensify efforts aimed at eradicating world hunger. During that time, the common definition adopted for food security was:

“Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices” (FAO 2006)

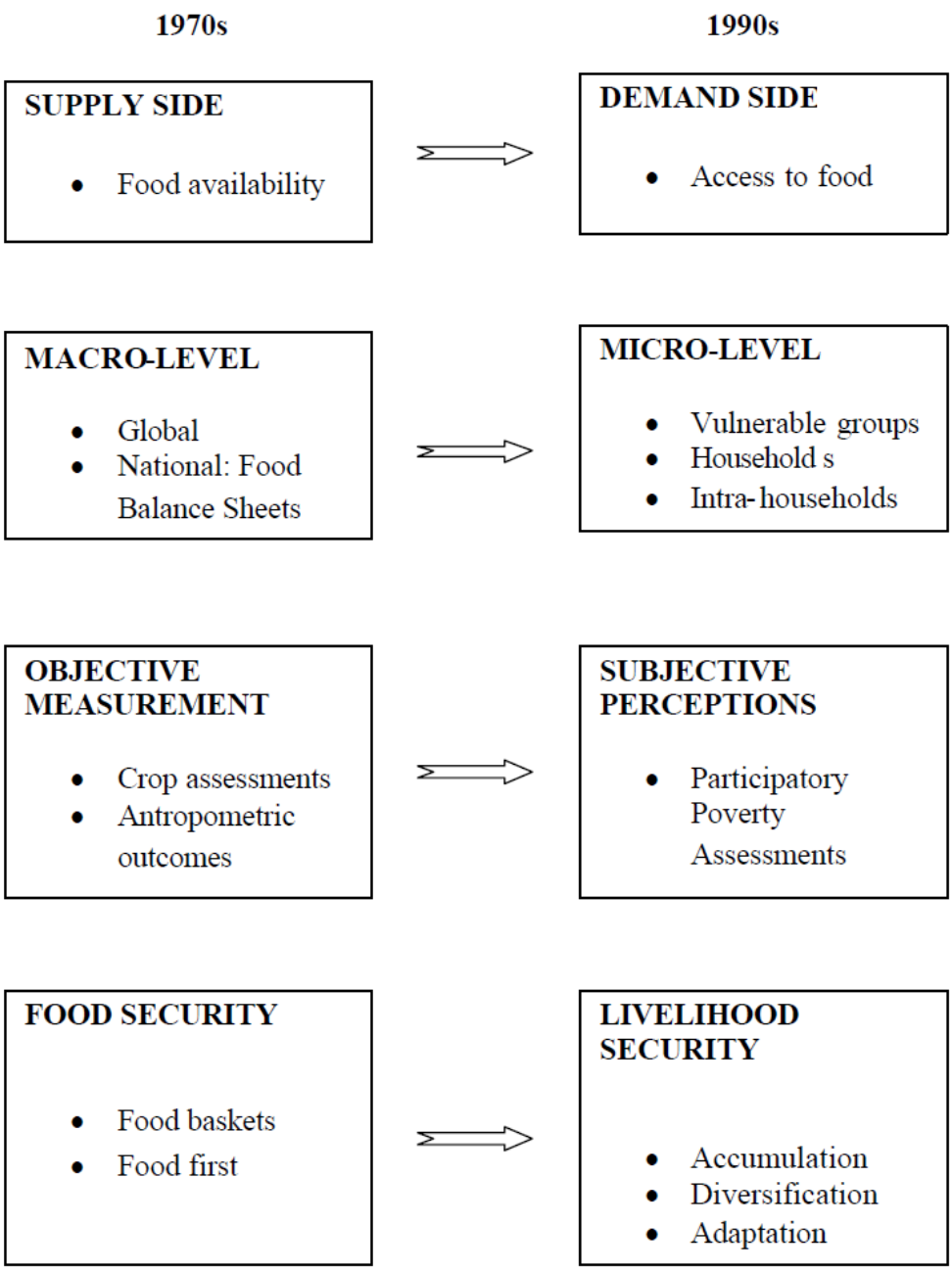
During the 1974 Food Conference, world leaders proclaimed that "every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop their physical and mental faculties” (World Food Conference, 1974). This is known as the Universal Declaration on the Eradication of Hunger and Malnutrition which recognized the existence of

sufficient resources to end hunger. However hunger persisted in various parts of the world after the conference, such as in Ethiopia (1984) and North Korea (1996), as well as chronic undernourishment which was not an episodic problem, but a continuous state of food deprivation. The World Food Conference occurred at a period of sharp price rises, and at the climax of the Green Revolution, when researchers developed high-yield varieties of staple foods such as wheat and corn and applied them in developing countries. By expanding food availability, they expected to expand food consumption and achieve what was considered food security at that time.

As a result, around the 1960s and 1970s, the term food security was traditionally confined to mean food supply at an aggregate level due to significant shortfalls in food supply and high food prices in the world markets during that time. However, the incidence of food insecurity remained high in many developing countries (Sijm, 1997). Despite improvements in supply conditions and low food prices after mid-1970s, there was a paradigm shift in the food security debate whereby the concept of food security evolved and developed to be conceptualized as consisting of three overlapping paradigm shifts. According to Maxwell (1996:156), the three shifts were from the global and the national to the household and the individual, from a food first perspective to a livelihood perspective, and from objective indicators to subjective perceptions illustrated in Figure 2.0 below.

From figure 2.0, it can be noted that food security thinking has evolved since the 1970s where it was concerned with supply side or food availability issues; addressing global and national food deficits whose measurements were based on objective indicators derived from crops assessments and anthropometric outcomes. During this period, governments and development agencies focused their attention on delivering “food baskets” and making food available. In the 1990s as will be discussed in the next section, food security evolved to become more demand oriented with emphasis on household and individual food needs. Subjective perceptions took centre stage evidenced by the use of participatory poverty measurements which meant that food security interventions would endeavour to ensure increased access through strengthening livelihood options. A detailed discussion of each of these shifts entailed is given below.

Figure 2.0 Evolution and Shifts in Understanding Food Security



IDS 2001

Shift 1: From the global/national to the household/ individual

Largely through Sen's (1981) work, food insecurity was seen as more to do with demand, affecting poor people's access to food at a household level, as opposed to a supply issue affecting availability of food at a national level. This shift from

a macro to a micro understanding of food security implied that food insecurity was viewed as a problem of access to food with the unit of analysis shifted from the global and national level to the household and individual level Maxwell (1996:156).

During the same period, there was much debate on the use of the individual or household as the unit of analysis. According to Maxwell, (1996:156-157) a number of studies focused on the household as the unit of analysis, whilst others tended to focus on individual food security with intra-household power and resource-allocation issues (Swift, 1989; Gittinger *et al.,* 1990). Access to food by individuals in a household was linked to the control they have over household resources and income. As a result, definitions of food security tended to be biased towards individual entitlement though complex inter-linkages between the individual, the household, the community, the nation and the international economy. For example the most-cited definition of food security taken from a World Bank 1986 policy study, notes that "food security is access by all people at all times to enough food for an active, healthy life" (World Bank, 1986:1). This was later expanded in 1996, during the World Food Summit to indicate that "food security at the individual, household, national, regional and global levels, exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." The definition stresses continued individual access, to enough food for both survival and active participation in society (Maxwell, 1996). It also reaffirms the need for economic access in addition to availability, and, for the first time, requires that the food have quality, both in terms of nutrition and cultural appropriateness.

Shift 2: From a food first to a livelihood perspective

The second paradigm shift was from a food first perspective to a livelihood perspective and long-term resilience of livelihoods. Whereas the first shift took place largely in the period 1975-1985, second shift took place mainly after 1985, stimulated by experiences from the African famine of 1984-85. The conventional understanding of food security was that food is a primary need, a lower-order need in Maslow's (1954) hierarchy of needs (Hopkins, 1986:4).

However, the assumptions underlying this view were challenged as it was recognized that short-term nutritional intake or avoiding hunger is only one of the objectives people pursue when faced with famine (Frankenberger and Goldstein, 1990; Davies, 1996).

The conventional food first approach treated food security as an isolated need, whilst the livelihood approach emphasizes the multidimensionality of food insecurity which is related to low productivity, weak and unaccountable institutions, lack of access to productive resources, market failure, inadequate policies etc. (UNCDF 2007). The advantage of this approach is that it highlights the need to better understand all the various factors influencing local livelihoods in order to succeed in improving the availability, access to and utilization of food. More importantly, food security is treated as a multi-objective phenomenon, with the food insecure themselves leading the identification and weighting of objectives (Maxwell and Smith, 1992:4). In this study, the analysis of livelihood diversification on food security is an indication of my assertion that food insecurity is livelihood failure. Rather than confining existing efforts to food production, more emphasis should be placed on having individual or household strategies that may enable individuals and households to withstand shocks.

My criticism to this thinking is that most livelihoods approaches imply that food security is the only desired outcome of household livelihood strategies without also taking into consideration issues such as having increased income, stronger 'voice', reduced vulnerability or sustainable use of the natural resources base (FFSSA, 2004:7). As will be demonstrated later in this study, motivations for livelihoods vary and may include wealth accumulation motives or household responses to external shocks. It therefore means that food availability is no longer the key issue but access and utilisation are priorities.

I also concur with Frankenberger *et al., (*2000:1-2) that one limitations of the food supply focus is that it ignores that fact that adequate food availability at the national level does not automatically translate into food security at the individual and household levels. In a study by de Waal on the 1984-85 famine in Darfur, Sudan, it was noted that people chose to go hungry to preserve assets

and future livelihoods. They were prepared to endure considerable degrees of hunger, in order to preserve seed for planting, cultivate their own fields or avoid having to sell an animal (de Waal 1991). Among development actors there is a shift in national food production as a measure of food security to sustainable livelihoods as crucial elements in food self-sufficiency. Oshaug (1985:5–13) clearly articulates this view by stating that:

"A society which can be said to enjoy food security is not only one which has reached a food norm …. But which has also developed the internal structures that will enable it to sustain the norm in the face of crises threatening to lower the achieved level of food consumption".

Shift 3: From objective to subjective indicators

In many food security discussions, conventional approaches relied on objective measurements such as target levels of consumption (Siamwalla and Valdes, 1980); consumption of less than 80% of the WHO average required daily calorie intake (Reardon and Matlon, 1989), or a timely, reliable and nutritionally adequate supply of food (Staatz, 1990). However, approaching food security using these terms has a number of limitations discussed below.

Firstly, nutritional adequacy based on calculation of calorie requirements per individual alone overlooks the fact that nutritional requirement is also a function of other variables such as age, health, workload, environment etc. (Maxwell 1996:159). In agreement with Maxwell, my criticism is that focusing on individual nutrition alone without considering other variables maybe problematic given that estimates of calorie needs for different age groups are often difficult and have been subject to constant revision. (Pacey and Payne, 1985: 70-71) have concluded that all estimates of nutritional requirements have to be treated as value judgements.

Another problem is that qualitative aspects such as food quality (Bryceson, 1990), cultural acceptability and human dignity (Oshaug, 1985), autonomy and self-determination (Barraclough, 1991) are omitted from quantitative measures. These issues imply that nutritional adequacy is a necessary but not sufficient condition for food security. Put bluntly, there is need for equal attention to also

be bestowed on the "quality" of the entitlement rather that the "quantity" of the food entitlement alone.

Maxwell stresses the subjective dimension of food security by defining it as "a country and people are food secure when their food system operates in such a way as to remove the fear that there will not be enough to eat. In particular, food security will be achieved when the poor and vulnerable, particularly women and children and those living in marginal areas, have secure access to the food they want" (Maxwell, 1988: 10).

It should be noted that the three paradigm shifts have meant a change in the food security understanding and approaches since the mid-1970s. Demographic growth, increasing urbanization and rural-to-urban migration, failed agricultural and market macro-policies, the effects of globalization, the spread of HIV/AIDS and the depletion of asset bases due to civil wars, natural disasters and other factors have been incorporated in the food security debate (UNCDF 2007). This has provided better insight into food security as it replaces the single focus on lack of food with methods such as the livelihood approach or asset-based approach. Concepts such as household vulnerability, food security, entitlement, flexibility, sustainable livelihoods, capabilities, adaptability, diversification, resilience and capital have found increasing usage in the food security debate (Maxwell 1996, UNCDF, 2007).

However, I concur with von Braun (1992:5) that food security and ways to improve it are issues that have been widely debated and often confused. My immediate reaction to the shifts identified by Maxwell is that in many academic circles they are treated as separate, exclusive and unrelated components. It is my view that whilst theoretically they are portrayed as unrelated and separate, but practical application requires that they be integrated to form a more robust and holistic approach to food security. It is important that in the food security debate, discussions should go beyond identifying these shifts but demonstrate how they all can be brought together form a more robust understanding in food security.

Secondly, I embrace an understanding of food security that places emphasis on household and individual food security from a livelihoods perspective. In

agreement with Carr (2006:15), "food security is a dynamic idea that has undergone significant transformations in its conceptual lifetime. Perhaps the most significant of these transformations is the shift from an initial view of food security as a product of reliable supplies of food to the growing contemporary emphasis on food as a single input in diffuse local livelihood strategies". Therefore, this implies a need to take into account the context in designing appropriate food security interventions given cultural differences, food preferences, available livelihood opportunities and natural resource endowments that support livelihood strategies. It is my hope that food security approaches will effectively pay attention to linkages that exist with agriculture, environment, employment, nutrition, health and incomes.

2.3 Review of Some Food Security Perspectives

Attempts to address food insecurity at national, community and households level have been influenced by how food security is perceived. Eisinger (1998:10) notes that "definition is important because it underwrites our collective responses ... Definition implies a choice, a particular way of seeing a problem among a range of alternatives. Policy is determined in part by that choice." Before discussions on how to address food security, it is critical that time is accorded to understanding what the term food security means. From the onset, there is conceptual confusion surrounding the term 'food security' evidenced by the variety of activities by different organizations that work under the umbrella of the term. This section will provide an overview of perspectives in food security thinking identifying key features, strengths and weaknesses in each approach. More importantly, the objective is to position these views in the food security debate.

2.3.1 Food Security and the Production Problem

This view defines food security as primarily a problem of increasing production and liberalizing free trade rooted in mechanistic and managerial thinking that prioritizes economic expansion and technological innovation (Spretnak, 1997). According to Lezberg (1999), proponents view food insecurity as a problem of insufficient adoption of advanced technologies in response to population growth. Influenced by neo-Malthusian conceptualization of the food security,

proponents are optimistic about the potential for technological innovation to triumph over inadequate food production (Swegle, *et al.,* 1991, Lezberg, 1999). Technological solutions backed by promotion of global free trade through market liberalization are suggested as alternatives in situations where production fails to meet demand (Glickman, 1996). Based on neo-classical economic theory, global food production is seen as adequate to feed the world if trade is not hindered so that food can be distributed to areas where demand is not being met. Thus the model of development based on comparative advantage and import substitution is also promoted under this view (Lezberg, 1999).

The call for modernization of agricultural production means that worldwide food security hinges on increasing agricultural production in order to meet the future needs of growing populations. Investment in yield-increasing technologies such as the use of hybrid seeds, fertilizers, insecticides, irrigation and mono-cropping systems is essential. The green revolution resulted in increased productivity through the increase of inputs and the mechanization of production (Friedmann, 1999). However, in some areas such as Africa where the green revolution was missed, adherents of a technological approach find promises for the future in biotechnology or genetic modification (Glickman, 1996). Biotechnology will facilitate identification, and manipulation of plant genetic make up for increased yields, insect and disease resistance. Therefore, biotechnology will enable food production to keep pace with population growth with or without any simultaneous increases in arable land for crop production.

However, Pretty *et al.,* (1996) suggests that in continuing to emphasise food production at all costs, may mean failure to take account of the evidence of the detrimental impacts of high-input agriculture in the past. High-external-input farming has proven to have failed in improving food security for the most vulnerable groups, notwithstanding the associated environmental and health costs. (Pretty, 1995; Conway and Pretty, 1991). Secondly, assuming that countries in the South can solely rely on food imports to ensure their food security exposes them to uncertainties of the world food market, limited storage and shipping facilities and foreign currency constraints. However a more crucial question to consider is how the poor will acquire the purchasing power to buy the food they need? This question is prompted by the silence on how the

approach will ensure effective demand for agricultural produce especially among non-farming contexts or urban areas. Thirdly, the introduction of genetic modification in agriculture triggers numerous concerns relating to human safety, ethical issues, impact on traditional smallholder farmers, intellectual property rights and its challenges on community seed storage systems etc. A detailed criticism of biotechnology is undertaken in Section 2.6.2 mainly focusing on its implications and impacts on smallholder farming among rural communities in the South.

One of the assumptions taken in this study is that food security cannot be ensured through food production alone. I endeavour to demonstrate the potential and increasing role played by diversification in household food security. Agriculture production in Africa continues to contend with insurmountable problems embedded in the political, cultural and socio-economic set up, therefore increases in production will be difficult to realise through advancement in agricultural technologies alone. Later in this chapter, I will demonstrate that adoption of biotechnology or genetic modification in food production ignites a lot of concerns and questions from the South. A host of questions and fears around human health, environment, ethical considerations, and regulatory capacity of countries in the South still linger in both academic and policy circles. More importantly, my dissatisfaction with this view as in agreement with many studies that have increasingly dismissed the notion that food security is a production alone problem (Baiphethi and Jacobs, 2009).

2.3.2 Food Security as an Entitlement

The "entitlement" view challenges the accuracy of the diagnosis provided by the technological/modern view. Influenced by understanding that food security focuses on the 'entitlements' available to the poor (Sen, 1996) and the 'right' to food (Olson and Mittal, 1998), this view draws attention to social and economic factors that contribute to lack of individual entitlement. Proponents argue that though worldwide food production has been sufficient to feed the world's population, millions continue to go hungry. Trade liberalization as a strategy has failed to assure food security (Hopkins, 1998: 12).

Furthermore, the argument under this view is that if production issues were the problem, one would expect that there is a direct relationship between the occurrence of hunger and food production shortages which is not the case. Simultaneous increases in food being produced and the incidence of hunger have been identified in various studies (Watts and Goodman, 1997; Sen, 1996). Conversely, if even during times of high productivity there has been hunger, who gets to eat and who does not eat are ultimately questions of economic power (Lezberg, 1999).

Sen characterizes hunger, food insecurity, and their ultimate expression famine, as consequences of poverty and the lack of access to 'entitlements.' Entitlements indicate an individual's power within the economic and political system, and their respective access to resources. And for those in poverty, the lack of entitlement means restricted access to social benefits, such as health care, housing, and education, as well as food (Sen, 1996). Equitable distribution of food is contingent on people's ability to participate in the market economy. In summary food, like other commodities, gravitates toward where the money is. Thus, for the poor, "how much and what they eat depends on their ability to earn money or on the state's willingness to support them" (Hildyard and Sexton, 1996: 286).

However, in this discussion and throughout this study, my emphasis is on the fact that food security cannot be achieved merely by increasing peasant farmer access to "entitlements," such as land tenure, access to loans, inputs, knowledge, and extension support. Besides this, a majority of governments in Africa have continued to struggle in trying to assure the right to food because access to food is determined primarily through market and contingent on an individual's resources and potential to exchange resources on the market. Therefore, I have reservations on the efficacy of the market as the sole arbiter of food rights. Secondly, over emphasis on addressing the ability to ensure access on "entitlements" should not ignore the need to ensure environmental sustainability. Much of agricultural processes currently practiced in the South exhibits evidence of both short (soil erosion, degradation, access to water resources, environmental impacts of agricultural technologies etc.) and long-term (soil degradation, long-term security of water resources, global climate

change etc.) environmental (Banuri, 1996).

2.3.3 Food Security as Environmental Sustainability

Under this view the main issue becomes one of long-term sustainability of land and resources necessary for agricultural production. This view does not consider the problem of individual or household hunger *per se* but rather, the long-term perspective if the current agriculture production system is uninterrupted. Proponents assert that the current industrial, technological agricultural system characterized by a lack of sustainability of agricultural production practices, will ultimately lead to food insecurity (Thompson, 1995). As such, the problem is articulated as a long-term issue that affects everyone who eats not just low-income households or countries of the developing world (Lezberg, 1999).

The sustainable agriculture movement focuses on improving environmental sustainability with populist undertones. Although the roots of the sustainable agriculture movement are found in environmentalism (Hassanein, 1997, Strange, 1988), the agriculture system serves a dual purpose i.e. mission saving the family farm while promoting a sustainable agriculture.

Sustainable agriculture with its thrust on environmental protection identifies industrial agriculture as the source of the problem of the unsustainable nature of agricultural production. Industrialized agriculture is perceived as detrimental to environmental sustainability and consequently detrimental to long-term food security. The problem is not industrial agriculture's commitment to increasing production but it is the means to this end that are regarded as problematic (Lezberg, 1999). This means conventional agricultural system will ultimately contradict, or undermine, its own promise of increasing yields in the future. Based on this argument, food insecurity is attributable to the unsustainable nature of the prevalent food system on tendencies of the industrialized food system, including globalization, dependence on chemical inputs, corporate control or the profit-oriented nature of the capitalist market. An unsustainable food system is characterized by being incapable of continuing to provide adequate and healthful food without destroying its own means of production (Buttel, 1997). Degradation of agro-ecological resources is seen as an injustice to

the earth, to the creatures of the earth and future generations which implies that food insecurity in the future will be a result of present day practices.

Modern agriculture has been criticized for being unable to assure long-term security of food supply given the level of corporate control. Multinational corporations already control seed supply through hybridization and patenting; which eliminates competition from household and community level seed banks. According to RAFI (1999), "the technology spells disaster for farmers and global food security because over three quarters of the world's farmers – mainly poor farmers – depend on farm saved seed. The complete removal of farmers from the age-old process of plant breeding through sterilized seed could also signify a disastrous narrowing of the gene pool on which everyone depends for food security". In addition, corporate domination in agriculture has negative repercussions for farmers in the world's poorer countries as it may have influence on government policies which may force farmers off the land, promoting corporate production processes over subsistence food production.

Populist undertones in the sustainable agriculture movement promote the agenda of 'saving the family farm' (Strange, 1988) which resonates well with issues of justice and equitable opportunities. However, my criticism of this view is that sustainability cannot only be measured through environmental parameters alone. I agree with Clancy (1994) that sustainability concerns should also include social justice for third world producers and farm workers, equal opportunity for women and minorities, and equity of access for low-income consumers. Furthermore, whilst the intentions to prevent over-exploitation of the environment are commendable, communities should be allowed to define and apply their local understanding of sustainability. Sustainability concerns should incorporate population growth considerations, as it has been observed that the dilemma confronting the world is how to increase and maintain consumptions levels in an environment which is finite.

2.3.4 The Community Food Security Approach

The term 'food security' has been expanded to 'community food security'. Advocates for community food security acknowledge the need for greater clarity in this definition necessary for building a coherent and collectively accepted

understanding of the term. According to Joseph (1998), "a well-developed theoretical or conceptual model of community food security does not exist. In a sense, it is primarily an articulation of principles that reflect activities and policies of community-oriented food and agriculture groups. Community food security is altogether incomplete and rather borrows from the anti-hunger and sustainability perspectives (Lezberg, 1999:20).

Notwithstanding the above, one of the common definitions for community food security states that, "all people in a community obtaining a culturally acceptable, nutritionally adequate diet through non-emergency (or conventional) food sources at all times (Joseph, 1998)." This definition inserts "in a community" to the more common definition for food security. In order to differentiate it from the more common usage of food security, emphasis is also on the source of food. To address this, Joseph (1998) suggests a definition, which has not been formally agreed but states that:

"Community food security represents comprehensive community-centred approaches to providing adequate resources and access for all people at all times to a readily-available, nutritionally adequate, safe and sustainably-produced food supply. Community food security supports sustainable community development and greater involvement in and control over all aspects of the food system by residents and community-based institutions. It also promotes greater food self-reliance in the context of the right to food for all people within a globally-sustainable food system (Joseph, 1998: 5).

Though it is assumed that the community food security approach goes beyond the adequacy of personal resources, to addressing questions of equity and sustainability (Gottlieb and Fisher, 1996), I notice that in practice the approach omits perspectives on individual situations of hunger and poverty. Efforts tend to be skewed towards sustainable food systems such as skills development or the generation of employment for low income individuals (Joseph, 1998) which limits attention on addressing poverty and inequality. More importantly, community food security offers no new insight on food security perspectives but is more about describing a set activities that fit under the approach, rather than providing an accepted definition of the term (Gottlieb and Fisher, 1998). As long

as it lacks a well-developed theoretical or conceptual model of community food security, it will receive less attention among academics and development practitioners.

From the above perspectives on food security, recognize that households access food through own production, purchases and transfers. I concur with the first three views which regard food security as a production problem, entitlement and environmental sustainability issue. The three views though different, complement each other by placing emphasis on gaps in the other views. Food security in my view can only be holistic if it goes beyond production to also pay equal attention to sustainability and entitlement. Own food production among rural communities in Sub-Saharan Africa will continue to occupy an important role given low incomes and alternative employment opportunities in these areas. However, population growth, limited arable land and climatic variation mean that food production for subsistence or commercial purposes need to be sustainable but not be at the expense of the environment. This creates the need for alternative ways to ensure food availability which in many cases incorporates non-farm livelihoods and transfers which also guarantee entitlement to food by households. In summary, it would be better if development actors, policy makers and academics to view food security as an integrated concept that incorporate, production, entitlements and sustainability.

2.4 Conceptual Framework on Food Security

Interest in food security has waxed particularly in relation to changes in the extent and nature of food problems worldwide. The 1975 UN definition of food security reflected the thinking of the day, which focused on adequate production at the global and national level. This was also a conventional view of food as a primary need. Food security is, however, a matter of both limited food availability and restricted access to food. Amartya Sen has been credited with initiating the paradigm shift in the early 1980s that brought focus to the issue of access and entitlement to food. Food insecurity is no longer seen simply as a failure of agriculture to produce sufficient food at the national level, but instead as a failure of livelihoods to guarantee access to sufficient food at the household level (Clover, 2003:7). As will be demonstrated, current definitions of food

security focus on the family or individual rather than the country as well as not only on the availability but on the access to food. Today, most common definitions begin with individual entitlement, though recognising the complex linkages between the individual, the household, the community, the nation and the international community. This section discusses definitions of food security and critical reviews food security components.

2.4.1 Definitions and Key Components of Food Security

"Food security is a problem most often conceptualised as macro phenomenon-deviations from trend in aggregate consumption. However, as a human problem it is primarily one of the welfare vulnerability of distinct categories of people within the population…the urban poor, the rural landless or marginal farmers" Clay (1981:5).

There are many definitions of household food security that have been proposed, but Maxwell and Frankenberger, (1992:8) suggest that they "all agree that the key defining characteristic of household food security is secure access at all times to sufficient food". For example, the World Bank defines food security as secure access by all people healthy food for an active life. (Stevens *et al.*, 2000:2). The 1996 World Food Summit also summarized food security as a situation "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy lifestyle" (FAO, 2001)

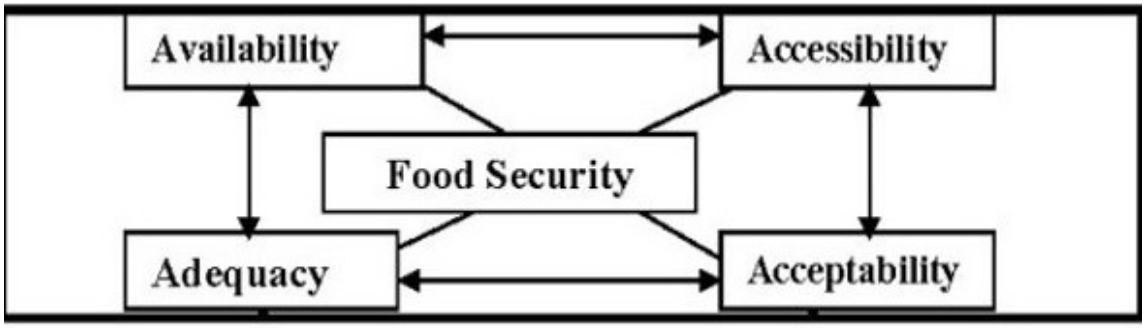
A definition adopted during an Africa regional workshop held in 1992 in Zambia noted that households will be food-secure when the conditions relating to availability and accessibility are met. In the definition, "availability" includes adequacy in staples, vegetable and animal protein relishes, vitamin supplements and concentrated energy sources which should be safe and meet cultural preferences. Accessibility implies that households can procure foods through the transformation of endowments such as land, labour, capital and other resources." (Republic of Zambia, 1992:15).

However, Hart (2009:370) points out those most current definitions of food security include the phrase 'at all times' but they do not distinguish between

different durations and intensities of food insecurity. For example, according to FAO, food security exists, at the individual, household, national, regional, and global levels when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for a healthy and active life (FAO, 2001).

From the above definitions, my position on food security includes food supply, access, adequacy, utilisation, safety and in some cases, cultural acceptability of food for all people at all times (Maxwell *et al.*, 1998:3). The interaction of the components is illustrated in figure 2.0 below where availability, accessibility, acceptability and adequacy are interlinked and portrayed as having a bearing on food security. The components mean that any discussion on food security should consider adequacy, availability, accessibility and acceptability factors which are directly and indirectly interrelated. Food must not only be available food but also accessible to all members. What is available must also be adequate and there should be willingness to consume it therefore, what is available must be accepted as a preferred food.

Figure 2.1 Interrelationships between Food security Components



In my opinion, understanding on food security has never been static but continues to evolve shaped by environmental, political and social factors at both macro and micro levels. Current food security definitions pay superficial attention to issues relating to sustainability and emerging concerns on poor eating habits among others.

Environmental concerns alongside those of equity and social justice promote the idea of sustainability, in which economy, society and ecology are considered

together (Gibson, 2005). Sustainability refers to the conditions that allow practices, activities and systems to endure in the long-term (Lima 2008:14). Though food security definitions emphasize the need to meet the conditions to food security "at all times", or conditions that meet food needs without the risk of seasonal food insecurity, the definition lacks clarity and fails to incorporate holistic sustainability principles (Lima 2008).

Problems caused by overconsumption and unhealthy eating habits such as overweight, obesity, and other diet-related chronic diseases are increasingly widespread in both countries in the North and South. These are being gradually incorporated into the notion of food security (Young, 2004) and somehow implied in FAO definition, which stresses the need for "an active and healthy life". Yet, publications from FAO and other development agencies still fail to incorporate overconsumption as a form of food insecurity (FAO, 2006).

Food availability and sufficiency

Food availability constitutes the most basic element of food security. However, globally this does not seem to be an issue, as food production has substantially increased in recent decades. The current production of grains, alone, would be sufficient to feed the world population and eliminate hunger, if only needy had access to it (Lappé *et al.*, 1998).

In this regard, food availability would refer to the sum of domestic production, imports (both commercial and food aid), and changes in national stock. FANTA (2011:1), further notes that availability includes having sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports, or donors consistently available to individuals or in reasonable proximity to them. Simply put, this entails food that is present from production, imports and stocks in the proximity of household. (Tweeten and McClelland 1997:226, Madziakapita *et al.,* 2004:9)

Individuals must have access to adequate resources and entitlements that enable them to acquire appropriate food (Hart, 2009). This should include being able to access the food they prefer in a socially acceptable way. Awareness of cultural factors and peoples' choices regarding the food they eat, how they

also procure and prepare food are all important aspects to understanding food security. Consequently, food security status is determined by how people make use of entitlements, select foodstuffs and prepare food (FAO, 2006 ; Hart, 2009).

Several studies have tied the concept of sufficiency to entitlement, for example Reutlinger and Knapp (1980) refer to it as “minimal level of food consumption”, FAO (1983) as the “basic food needed”, Barraclough and Utting (1987) as “ adequate to meet nutritional needs”, World Bank (1986) as “ enough food for an active and healthy life”, Sahn (1989) as “enough food to supply energy needed for all family members to live healthy, active and productive lives”.

From most definitions what is referred to as food places emphasis on calories and not proteins, micro-nutrients, food quality or safety. This position assumes that other needs are usually satisfied when calorie intake in satisfactory (Maxwell and Smith, 1992). However, as indicated earlier, estimating calorie needs for different groups is problematic which makes all estimates of nutritional requirements be treated as value judgements (Pacey and Payne, 1985). Despite the problems related to the concept of enough or sufficient food, it makes sense to concentrate on individual calorie needs to those of the household, go beyond defining needs for survival to those of an active, healthy life to also assess the gravity of a shortfall in food availability (Maxwell and Smith, 1992).

However, food available to the population must be nutritious (according to the World Health Organization nutrition guidelines) and also meet standards of safety, i.e. to be free from pathogens and other contaminants, such as chemical residues. But in practice these chemical residues, as well as bacteria will be often present in the food, even if just in small quantity (e.g. pesticide residues commonly present in fruits and vegetables from conventional agriculture). A similar case is that of antibiotic and hormone residues in animal products such as meat, dairy and eggs, whose safety has been continuously contested (Pollan, 2006).

Sustainable food security is, the state where the food system provides adequate food while promoting social justice and ecosystems integrity. Food has to be safe

and nutritious for it to be called healthy; however, it must also be culturally-appropriate (Lima, 2008). Though one could argue that most people living in food insecure conditions should put their survival needs first, and accept food which does not suit their culture. Food aid programmes in various parts of the world have made it necessary and adequate to speak of "cultural appropriateness" than of "cultural acceptability", given that situations of hardship might make people accept food that they otherwise would not. To be considered adequate, then food must be both healthy (i.e. safe and nutritious) and culturally-appropriate (Lima, 2008).

Food access and entitlement

Food must be available in sufficient quantities and of appropriate quality through either domestic production or purchase which may include food aid when necessary (FAO, 2006). Food access refers to people's entitlement to food, namely the amount they can produce, purchase or otherwise receive through formal and informal food distribution systems (FFSSA, 2004). In this case individuals must have adequate incomes or other resources to purchase or barter to obtain necessary food needed to maintain consumption of an adequate diet and nutritional level (FANTA, 2011). Food insecurity can occur in situations where food might be available but not accessible due to the erosion of people's entitlement to food (Borton and Shoham, 1991).

Following the work of Sen (1981:2-3), there is a critical distinction between the availability of food and people's access to food. People's entitlements to food arise from their assets, stores, networks and skills, from their own production, from selling their produce and labour, and from transfers (entitlements). People are food insecure when the combination of entitlements is not sufficient to enable the individual or household to acquire minimum food requirements. Increasing food production nationally will not increase food security for people and groups without effective entitlements to that food (FFSSA, 2004:5). Entitlement refers to the set of income, assets, commodities with which households can establish control and secure their livelihoods. Consequently, households derive food entitlements from their own production, income, gathering of wild foods, community support, migration, etc. Thus a number of

socio-economic variables have an influence on a household's access to food. Therefore, food insecurity is viewed as a problem of access to food, with food production being a route to entitlement, either directly for food producers or indirectly by driving market prices down for consumers. This makes food availability decline not a necessary condition for food entitlement decline (Maxwell and Smith, 1992:11).

Further expanding on Sen's entitlement theory, Swift (1989) claims that households' vulnerability to food shortages is better understood with respect to the paucity of household assets rather than immediate entitlements. As successive crises deplete household assets, the vulnerability of that household will be a function of immediate entitlement failure as well as exhaustion of buffer stocks.

Food use and utilisation

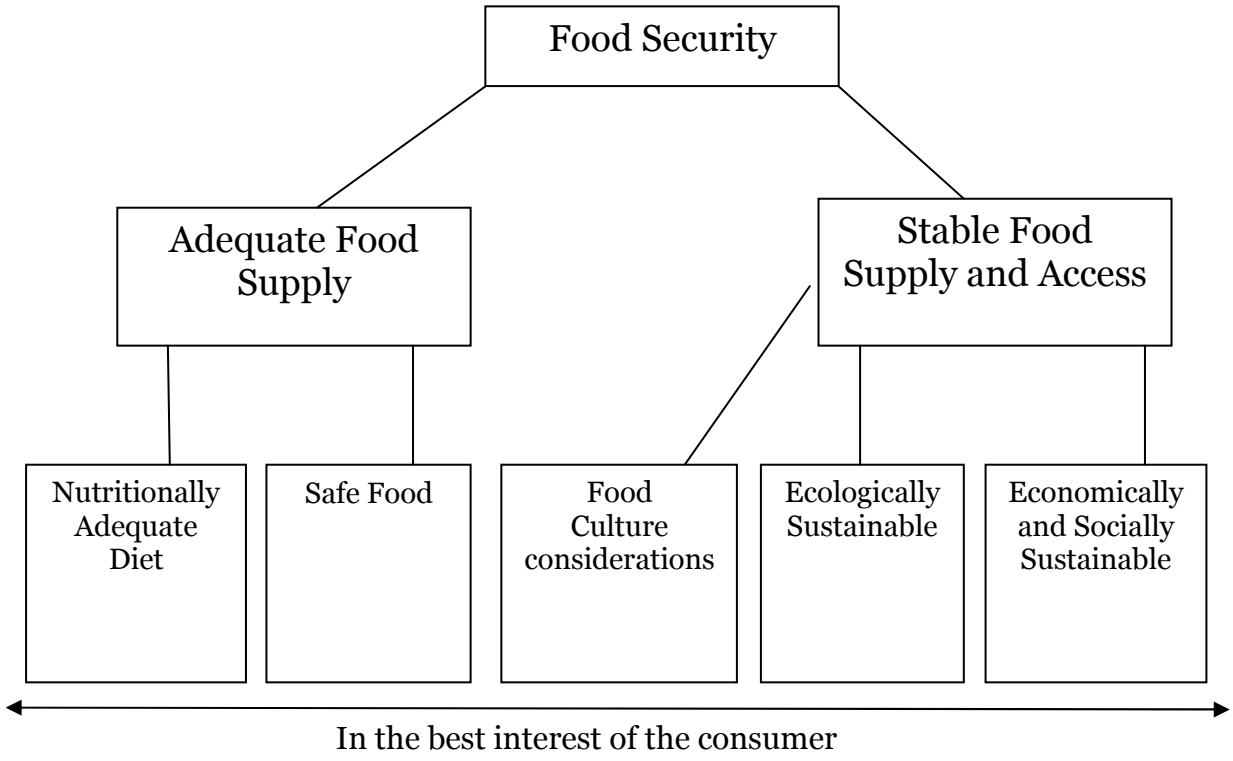
This refers the way that food is prepared and distributed between individuals within the household, and the individual capacity to absorb and utilise nutrients in the food consumed. Utilisation also implies that food is properly used through the existence of proper food processing and storage practices, adequate knowledge and application of nutrition and child care, and adequate health and sanitation services (FANTA 2011).

Utilisation refers to people's ability to select, store, prepare, distribute and eat food in ways that ensure adequate nutritional absorption for all members of the household. The availability of safe water, sanitation, nutrition education and health care services also influence the ability to attain nutritional health (Hart 2009). This makes it imperative to pay attention to issues of food safety, quality, sufficiency and the body's ability to efficiently convert food and absorb nutrients.

The definition of food security by FAO (2001) suggests that there is a stability of availability and access to food dimension. Food secure households must have sustained access to adequate nutritious food at all times. Anxiety about loss of food supply due to various factors such as sudden political, economic or climatic

shocks, household level periodic shocks such as the death or unemployment of a member should not affect a household's entitlement to food. In Figure 2.0 below by Oshaug and Haddad (2002), emphasis is placed on the stability and adequacy dimensions of food security should take into account nutritional adequacy, safety, cultural, ecological and economic considerations. Figure 2.0 also implies that household food security (amount of food consumed, its nutritional quality, and the reliability of access to it over time) is not simply a function of household food production, but is linked in complex ways to the overall livelihood strategies of households (Frankenberger *et al.*, 2000:3).

Figure 2.2 Adequacy and Stability Dimensions of Food Security

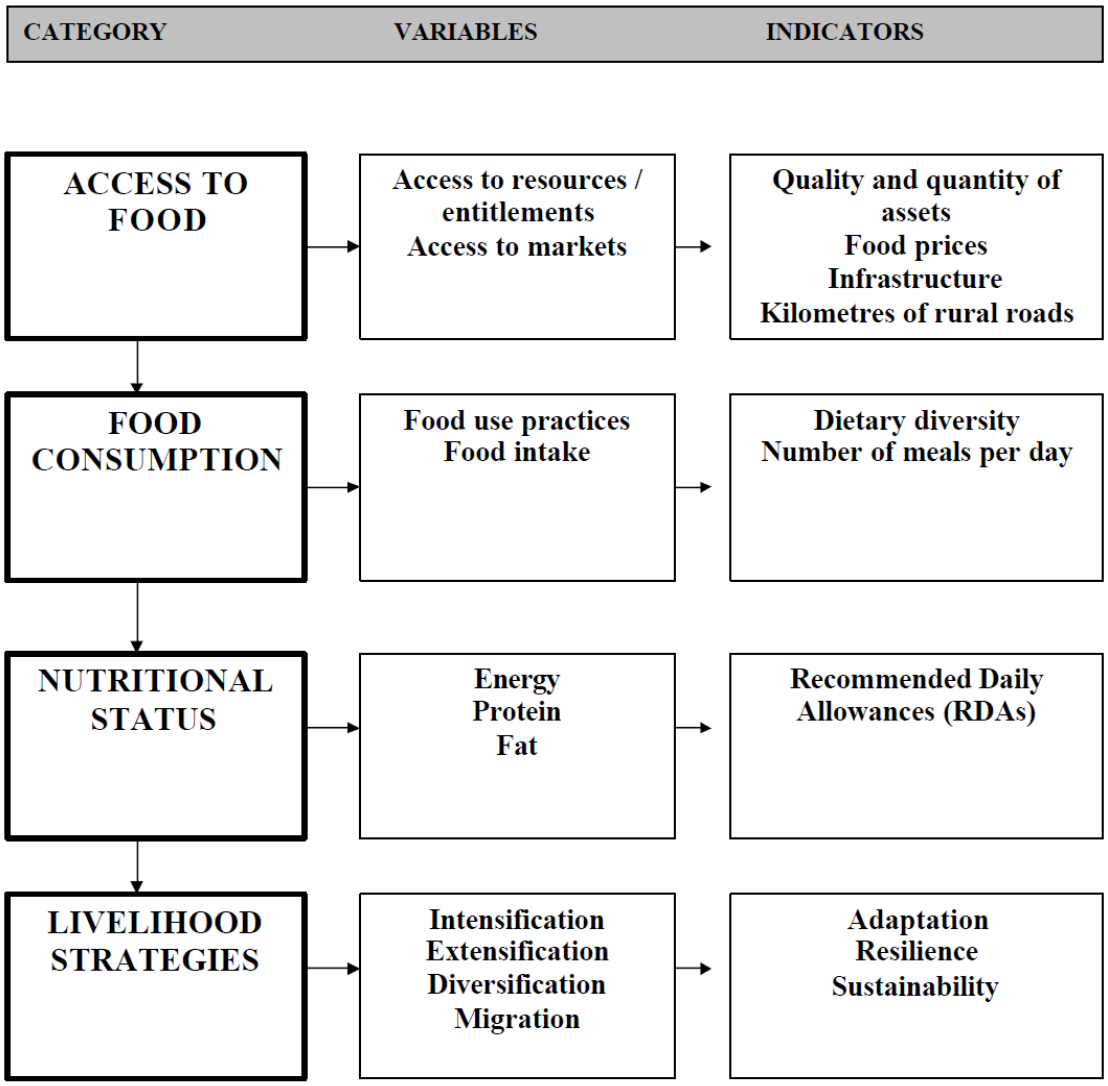


Oshaug and Haddad 2002

2.4.2 Analytical Framework on food security

The shifts in food security thinking show the analysis of food security widened from food security to livelihood security, from global or national food security to food security at the household level making the household become the unit of analysis. The framework used to analyse the food security status of households is illustrated in Figure 2.3.

Figure 2.3 Analytical Framework for Household Food Security



IDS 2001

The framework in Figure 2.3 shows the main categories that are analysed alongside the variables and indicators used to assess the food security status of a household using both quantitative and qualitative perspectives. The first category to be analysed is 'access to food' by different households based on the entitlement framework developed by Sen (1981). People become food insecure because of lack of entitlements, thus the livelihood strategies employed by households depend on the resources or capitals available to each household. Based on this understanding, food security is an outcome individual's accessibility to productive resources which can be taken as evidence of food security or insecurity among households. This is in agreement with Sijm (1997), that an evaluation of household food security needs information on food

production, stockholding, transactions in kind or in cash, food consumption, and calorie intake at the household level.

The second category relates to food consumption i.e. the kinds of products consumed by selected households (variety in the diet). Obtaining information about prices of food products consumed enables one to quantify monthly food expenditures. The aim is to see whether households are able to satisfy food and other basic needs. Households who satisfy their food needs by spending half or more of their income on food only (i.e. those households who attain food security by compromising other needs) may be viewed as food insecure households and are usually poor.

The third category focuses on nutritional status of the households which is an investigation into food consumption behaviour of households. Analysis of the nutritional content of the food consumed will enable identification of households whose members consume less than the recommended daily allowances of these nutrients who will be regarded as food insecure.

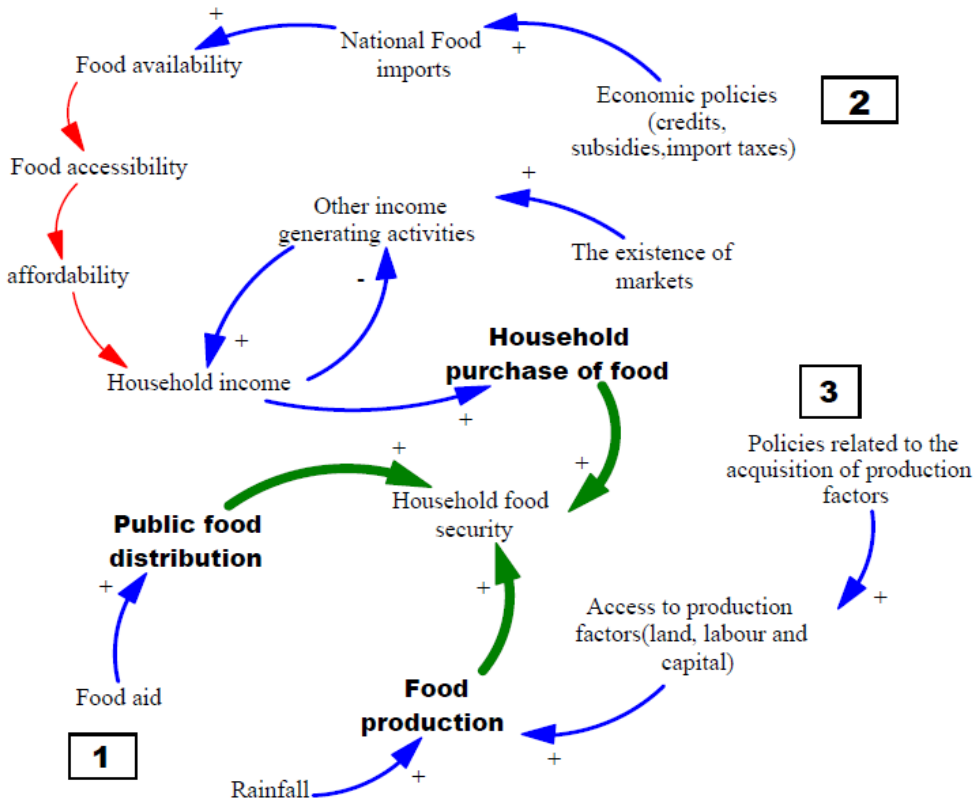
The last category relates to the analysis of livelihood strategies employed by households in their quest to be food secure. It investigates who in the household is involved in what activities, how and why by looking at the day-to-day experiences of households. Food insecure households will be characterized by unsustainable strategies i.e. do not lead to positive outcomes, because they are prone to risks, stress, shocks, and uncertainty, and who do not own assets to buffer these shocks and stresses. Sijm (1997) defined coping strategies as the bundles of responses by vulnerable households to deal with situations of food insecurity, irrespective of the question whether these situations are acute, severe, chronic or seasonal.

2.4.3 Some Determinants of Food security

There is a general consensus that poor households access food mainly through markets, subsistence production and transfers from public programmes or other households (Baiphethi *et al.,* 2009:459 ; Ruel *et al.*, 1998:11). The three sources maybe further categorized as: production, exchange (barter or purchase) and transfers (Sen, 1981:2). Food security is therefore not limited to sufficient

agricultural food production, but more also livelihoods that are able sufficiently provide enough food for individuals and households. This is shown in Figure 2.4 below through the thick-green arrows which indicate ways through which households may access food.

Figure 2.4 How Households Access Food



Abeh 2003

From Figure 2.3, household food security can be ensured either through purchase, public food distribution and food production. From point **(1),** direct transfers of food can immediately lead to an increase in the quantity of food available to households. From point **(2),** favourable economic policies may trigger national food importation, which will increase the quantity of food available locally. However, availability of the food does not necessarily translate to accessibility and affordability to households. In response, households may be triggered to pursue other income generating activities that will in turn increase household incomes. At **(3):** If policies related to the acquisition of production factors are fair enough, then access to production factors by individuals will

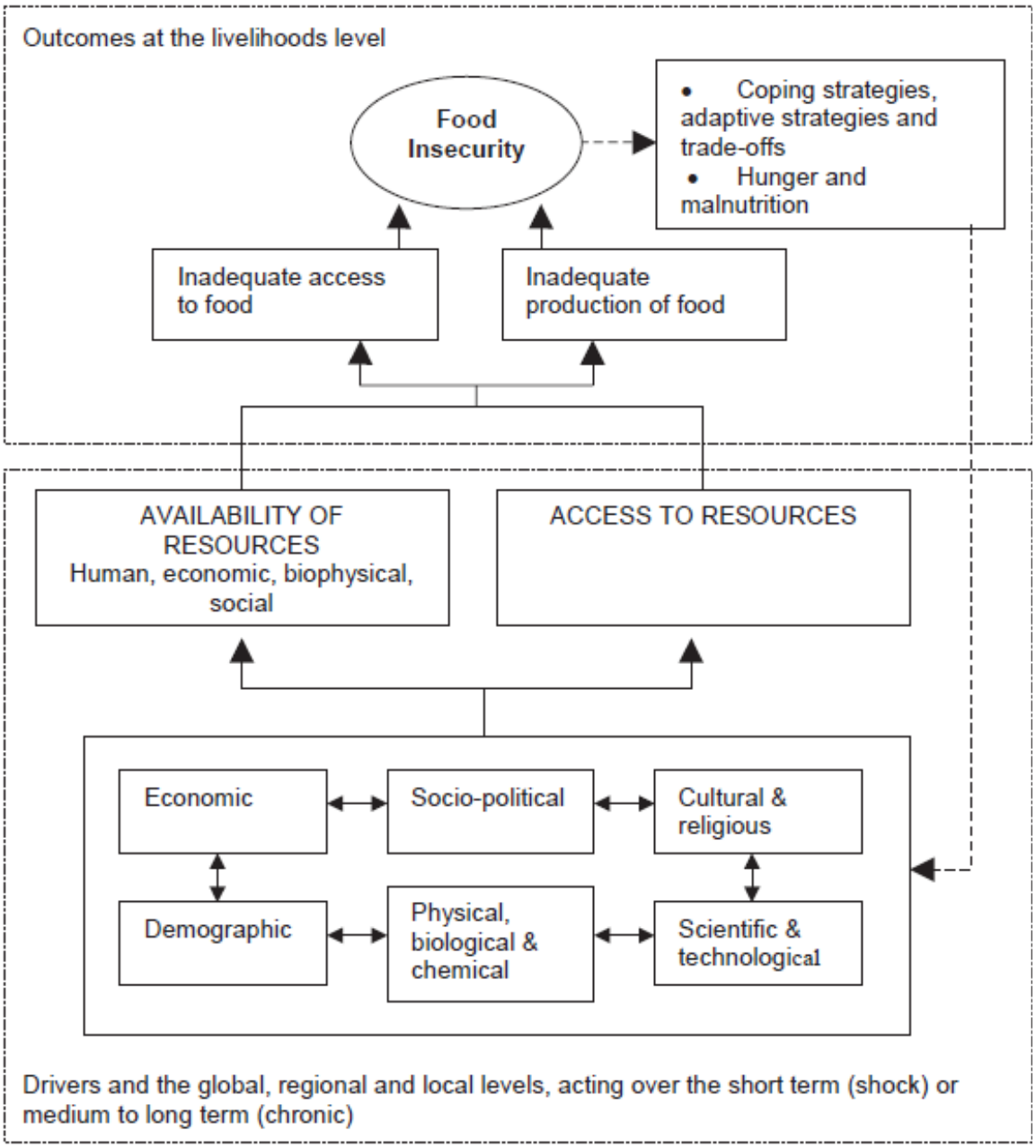
increase. Increased access to production factors brings about an increase in total food production thereby ensuring a high household food security.

2.5 Understanding Food Insecurity

Sanchez *et al.,* (2005:11) defines food insecurity as a situation where people do not have physical and economic access to sufficient, safe, nutritious and culturally acceptable food to meet their dietary needs to lead a healthy and active life. There are complex dynamics at the local level that influence the ability of people to access food. An example is the 2002–2003 food crisis in Southern Africa which was evaluated as the result of an interplay of political, social and economic factors at various scales, and not the result of environmental stressors affecting production. This meant that drought and climatic stress played only a small part in food shortages (Mano *et al.,* 2003:3; USAID 2003:33).

Misselhorn (2005:35) developed a theoretical framework of the processes driving food insecurity. Community and household failure to access food either through purchases, exchange (such as food for work) or gifts are a major cause of food insecurity rather than local production deficit alone. In Figure 2.4, five general categories of causes (drivers) of food insecurity are identified i.e. economic; socio-political; scientific and technological; cultural and religious; physical, biological and chemical; and demographic. These act over the short or long term either directly or indirectly by initiating other drivers of food insecurity. Food insecurity will occur when there is a significant reduction in production or access to food has been negatively affected as shown in Figure 2.5 below.

Figure 2.5 Drivers of food insecurity



Misselhorn 2005

Sen's (1981:2) conceptual framework of entitlements in famine theory agrees that people's food security is heavily tied to market forces, which in turn are usually affected by the socio-economic and political conditions of the society in which they live (Von Braun *et al.*, 2003:2). In agreement with this, an underlying assumption in this study is that drought mitigation and increased agricultural output will not alone ensure household food security. Food security is a complex phenomenon whose analysis and intervention requires recognition

of an interaction of various factors e.g. socio-political, economic, and environmental at micro and macro levels.

2.6 Some Key Issues in the Food Security Debate

Increasingly, it is now recognized that it is no longer tenable for the world to throw money at the problem of widespread hunger. More clearly, improving agriculture in isolation of other factors and alternative strategies has long been contested as the best way of addressing food insecurity. A much more strategic approach is necessary in developing and implementing effective international, national and regional policies with regard to food security (Clover, 2003:8). In tackling the causes, the centrality of growing structural deficiencies must result in increased recognition of the long-term nature of revising approaches to food security. Responses, while integrating new approaches to farming should critically look at the implications of biotechnology in food production as well as challenges posed by population in view of ecological limits. This section provides an overview on the debate around the role of, biotechnology and population growth as emerging issues in the food security debate.

2.6.1 Analysis of the Food Security and Population Growth Debate

Human population growth is perhaps the most significant cause of the complex problems the world faces in addition to climate change, poverty and resource scarcity (Collodi and M'Cormack, 2009:1). It is expected that by 2050, the world's population will have grown to 9 billion. Most of this increase will be in Asia and Africa, which will face increased strain on already insufficient resources. Sustained population growth, aggressive economic competition and increased consumption will result in intensive exploitation and pressure on resources (UNEP, 2009; OECD 2003). Despite rapid population increases, crop yield growth has slowed in much of the world because of declining investments in agricultural research, irrigation, and rural infrastructure and increasing water scarcity. The combined effect of population growth, climate change, land degradation, crop and cropland losses to non-food production, water scarcity, desertification, resource-depleting subsistence strategies and urban expansion means food production could be as much as 25 percent less than demand by 2050 (UNEP, 2009). Continued population growth means pressure is being

placed on arable land, water, energy, and biological resources to provide an adequate supply of food while maintaining the integrity of the ecosystem. As the world population expands, the food problem will become increasingly severe.

With the myriad of challenges facing agricultural production in developing countries, Garrett Hardin's (1968) "Tragedy of the Commons" points out that, human beings are constantly making use of goods, space, and resources that are also available to others. The personal benefit of using these "commons" is clear, but on an individual level, the impact made is seemingly trivial. This makes a rational individual conclude that the benefits of the commons can be enjoyed without causing any slightest damage to it, yet as a group, we wreak havoc (Christensen, 2005).

According to Hardin (1968) there exist problems that lack a technical solution, an example being the "population problem" whereby our ever-growing human population, with each individual trying to maximize their gain, is subject to a finite planet. Influenced by Social Darwinism, Hardin suggests that the prospect of an ever-growing population where all individuals are trying to maximize their own gain in a finite environment is impossible. The tragedy comes as the usage of each common climbs above the optimal level.

A striking illustration of the tragedy is seen in a situation created by pollution where, "The rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them." (Christensen, 2005). When put into the context of a very large population, this "rational man" and all those with a similar mind-set, demonstrates that we "are locked into a system of fouling our own nest". Hardin (1968) further argues that legislation is ineffective in encouraging human temperance in the use of commons. Laws or legislation cannot reverse overuse of the commons therefore, change must occur in the attitudes of the human race.

Returning to the population problem, Hardin (1968) suggests that human breeding must be limited. He correctly states that "with appeals to limit breeding, some people will undoubtedly respond to the plea more than others" which means that those less receptive to this plea will out-breed the others,

thereby strengthening population growth. Therefore, the population problem and the tragedy of the commons are closely interlinked. Whether the population problem lacks a solution or not is irrelevant. To understand that the collective overuse, and resulting tragedy, of the commons will govern population growth in our finite environment is absolutely sufficient (Christensen, 2005).

The ability of agriculture to support growing populations has been a concern for generations and continues to be high on the global policy agenda. Over the past several decades, some experts have expressed concern about the ability of agricultural production to keep up with global food demands (Brown and Kane 1994; Meadows *et. al.,* 1992). Proposed measures will be insufficient to ensure adequate food supplies unless growth in the human population is also controlled (Pimentel *et al.*, 1994). Using the neo-Malthusian argument, there are claims that populations continue to grow rapidly, while yields of staple crops continue to decline (Pretty *et al.,* 1996:2). Consequently, ecological limits to growth have already been reached exacerbated by the current state of knowledge, where new technological breakthroughs are unlikely. Solving these problems means making population control the first priority (Kendall and Pimentel, 1994).

However, there are arguments or alternatives that have been forwarded in an attempt to find a way around the dilemma caused by increased population growth. Some have argued that genetic and scientific modification of food is likely to be necessary, for human and animal consumption (DCDC, 2007). New agricultural methods such as better rain-fed agriculture and irrigation management, genetic engineering for higher-yielding crops, aquaculture should be considered. In this debate, I am of the view that food insecurity is not only a result of inadequate food supplies which cannot be resolved by increasing investment in agriculture alone. It is a complex phenomenon which has been compounded by population growth and resource degradation in light of ecological limits. Population growth is a real problem which requires communities and governments and come together to find common solutions. My suggestion is that population programmes be integrated into overall development objectives and be linked to other resource issues. Distribution and rural-urban migration patterns should be at the same time linked to improved

resource management to increase crop yields and preventing land degradation which ultimately ensures sustainable livelihoods for the rural poor. This approach is meant to increase chances of increasing food production while protecting the environment and easing the burdens of the rural poor.

2.6.2 Biotechnology and Food Security

There is increasing anxiety about the global availability of food with nearly a billion people experiencing hunger, and many more suffering from malnutrition due to lack of micronutrients (FAO, 2010). The increasing world population has led to increased demand for food and reduced per capita availability of arable land and irrigation water. Compounding this problem is the fact that most farmers in the developing world own only small plots of land whose production potential is affected by limited skills and extension support, low soil fertility, crop losses from pests and droughts (Tonukari and Omotor, 2010:13). In addition, land and water for agriculture are recognized as diminishing resources, which means there is no option but to produce more food from less arable land and irrigation water.

With the threat of reduced harvests to below subsistence levels (Vasil, 1998; Conway and Toenniessen, 2003) and the consequent food insecurity, the key question in the debate is how can science be mobilized to raise further the biological productivity ceiling without any associated ecological harm (Swaminathan, 2000) ? Biotechnology has been considered to possess immense potential to help achieve the productivity gains needed to feed a growing global population, introduce resistance to pests and diseases without costly purchased inputs, heighten crops' tolerance to adverse weather and soil conditions, improve the nutritional value of some foods, and enhance the durability of products during harvesting or shipping (NCABR 2006:2; Pinstrup-Andersen and Cohen, 2000). It is further argued that in addition to the development of drought-tolerant and insect-resistant crops, research on genetic modification may enable appropriate weed control, increase farm incomes and reduce the time women farmers spend weeding, allowing more time for the child care that is essential for good nutrition (Pinstrup-Andersen and Cohen, 2000).

Tsubota (2002:6) also adds to this debate by pointing out that the unprecedented urban transition where within the next decade, more than half of the world's population, an estimated 3.3 billion are expected to be living in urban areas (UNPD, 1995) will bring about social and environmental problems with notable consequences for food security. Shortage of agricultural land also means that urban populations are not able to feed themselves by subsistence food production. This makes biotechnology by default the only way to increase production to meet future food needs. In summary, cited benefits of genetically modified (GM) foods include enhanced nutritional quality and taste, reduced maturation time, increased yields and stress tolerance, and improved resistance to disease, pests and herbicides. These ultimately lead to increased food security among growing populations in the South.

Counter Arguments against GM crops

Despite the above assurances, GM crops continue to be a hotly contested issue in the South. Controversies surrounding genetically modified foods and crops commonly focus on human and environmental safety, labelling and consumer choice, intellectual property rights, ethics, food security, poverty reduction, and environmental conservation.

Proponents of GM crops cite population growth in light of decreased arable land as one cause of food insecurity in their argument for GM crops. Altieri and Rosset (1999) categorically argue against this by stating that that there is no relationship between the prevalence of hunger in a given country and its population. The world today produces more food per inhabitant than ever before which means the real causes of hunger are poverty, inequality and lack of access. I agree with the Brundtland Report which cautioned that the challenge of improving food security is more than just increasing food production and that globally agriculture does not lack resources but lacks the policy to match need and production (WCED, 1987). Too many people are too poor to buy the food that is available (but often poorly distributed) or lack the land and resources to grow it themselves (Lappe *et.al.,* 1998). This means the problem of world hunger is not a problem of food production alone but one of distribution and lack of access.

Most innovations in agricultural genetic engineering have been profit-driven rather than need-driven as they are controlled by large multi-national companies. One of them is Monsanto (a US based company) which dominates the seed market in many parts of the world and has been accused of using every means to introduce its GM products everywhere in the world, even where they are illegal. One of the consequences of Monsanto's seed policy is that it has reduced the choice of farmers over seeds. Conventional varieties of high quality crops such as corn, soy and cotton are becoming more difficult to find, even impossible, showing the extent to which Monsanto's GM varieties have pushed other seed varieties off the market. A characteristic of Monsanto seed policy is the aggressive patenting of the seeds and plants. Farmers who possess patented seed are prevented from freely saving the seed for its use next season through technology agreements that forces them to buy new seed every season (ERA 2005:10).

Monsanto's patenting approach, motivated by profit seeking motives mean that the introduction of intellectual property rights on seeds will deny farmers right to save, replant, share or propagate seeds without authority of the patentee (Makoni, Mohamed-Katerere, and Chenge, 2006: 316). Traditionally, African farmers have been freely producing, sharing, saving, and replanting seeds. This practice always ensured conservation, propagation of indigenous seeds while at the same time strengthening cultural and social fabric in the community. Biotechnology companies promote farmers' dependence upon seeds protected by intellectual property rights, which conflict directly with the age-old practice of farmers to reproduce, share or store seeds (Hobbelink, 1991:159). In my view, this approach means elimination of farmers' indigenous seeds making smallholder farmers dependant on profit driven companies for the supply of seeds. Hence, their food production and by extension livelihoods will be controlled by these corporate companies.

It is also feared that genes from GM crops can pass on to other members of the same species and perhaps other species at gene, cell, and plant and ecosystem level. This may create for example, herbicide-resistant weeds or lead to the development of resistance in insect populations exposed to the GM crops (FAO, 2003). Due to the known and unknown risks associated with GM crops,

regulating their introduction becomes very critical. However, many African governments lack the resources and capacity to adequately regulate and monitor the introduction of GM crops.

In this whole debate, I recognize that whilst offering prospects of improved food availability among smallholder farmers, the application of biotechnology in countries of the South is not straightforward. I agree with Chrispeels (2000) that agriculture among rural farmers in the South needs to be improved but this does not necessarily mean modernization. It would be better if developing the South avoids the high input unsustainable farming and rather focus on adopting more sustainable practices in agriculture.

Smallholder farming will continue to play a significant role in food security in the South. In the next chapter I provide a detailed discussion on its contribution to food security. However, in this discussion on biotechnology, I suggest that current efforts should migrate from simply rushing to develop and promote GM crops that promise increased yields not taking into account agro-ecology, social and economic systems of these areas. By championing a bottom up, instead of top down approach in agriculture development, agricultural research will be better equipped to generate a range of people driven and context specific choices that the farmers could implement. This implies an approach that is not about the transfer of technology alone, but also empowerment of the farmer to improve production and access to sustainable livelihood strategies. Academics and development practitioners in the South should think beyond introduction of GM crops but realizing that there are many aspects of providing food for the poor that are not necessarily under the control of laboratory scientists. Agriculture research should be strengthened but this should not be confined to research in GM crops as the only alternative.

Lastly, due to the many unknowns associated with GM crops, there are three critical issues to consider i.e. whether or not genetically modified organisms offer a sustainable food security option; what are the biosafety implications in terms of human health; and the extent of existing African capacity to undertake research, effectively monitor and evaluate genetically modified products and their use (Makoni *et al.,* 2006: 300). In view of this, I also suggest that an

international moratorium on the commercial growing of GM crops especially in the South to allow for:

- Independent research and assessments of the social, health, environmental and economic impacts GM technology
- Increased informed public debate on biotechnology development and ethical considerations
- The establishment regulatory systems and legislation for applications and marketing of GM technology and crops

The adoption of this precautionary principle on commercial growing recognizes that in many countries in the South, food production is closely linked to cultural and livelihood systems. This is not meant to accord attention to crucial issues such as the impact of genetically modified organisms (GMOs) of local livelihood systems, bio diversity and how to equitably share the benefits arising from the use of genetic materials in developing countries (Young, 2004:6). Meanwhile other less controversial interventions can be promoted with relative ease and at a lower cost such as improved seed, fertilizer, mechanized tools, and better irrigation systems.

Conclusion

The concept of food security has evolved and changed over time to become more subjective, household focused and a livelihood issue. Academics and development actors seem to agree that a food security though complex should include accessibility, availability, and adequacy and stability dimensions. In this discourse cultural appropriateness is interwoven throughout. It is also generally agreed that food production does not necessary translate to food security. This is due to the recognition of the fact that households access food either via own production, purchases or transfers. Though agricultural production has been promoted in the past, over the years due to the various challenges affecting production, alternative strategies are being promoted aimed at essentially improving access to food. Population growth has been identified as a key issue

in the food security debate. This has prompted a contentious discussion on biotechnology and its contribution to agricultural development.

In light of this, the chapter provided a synopsis of the concept of food security, taking into account the historical development, definitions, indicators and essential components. From the overview, it may be concluded, that food security goes beyond food production to livelihoods which translates to poverty reduction. In this study, food security is viewed as a livelihood issue which takes into account entitlement and sustainability considerations. I also believe that increased agricultural production at household level continues to enjoy greater attention among development actors as key to ensuring food availability. From the various studies on causes of food security, it can be concluded that food security is not dependent only on household food production but also the ability to access food through market systems. Later in the study, more focus is on attempting to make a case for livelihood diversification and position it in the household security debate.

CHAPTER THREE

UNDERSTANDING CLIMATE CHANGE AND THE FUTURE OF SMALLHOLDER AGRICULTURAL PRODUCTION IN SUB-SAHARAN AFRICA

3.0 Introduction

Mwaniki *(*2005:1) identifies the root cause of food insecurity in developing countries today as the inability of people to gain access to food due to poverty. Smallholder agricultural production plays a pivotal role in enhancing food security at household level. In this chapter, it is recognized that smallholder farming potentially plays an important role in livelihood creation and food security amongst the rural poor (Baiphethi and Jacobs, 2009:5). However, smallholder agriculture faces numerous challenges which include limited arable land, limited access to critical inputs, adequate extension advice, and veterinary support for animals and small-scale water management. Most smallholder farmers grow their crops under rain-fed conditions and suffer the seasonal consequences of increasingly erratic rainfall. Fundamental considerations which cannot be ignored when discussing the prospects of smallholder agriculture in food security include rainfall variability, climate change and the underlying uncertainty that they impose on production. Livelihoods in rural Africa are mainly climate dependent where about ninety five percent of the food in Sub-Saharan Africa is grown under rain fed agriculture which renders it vulnerable to adverse weather conditions Mwaniki (2005).

Exacerbated by low skills level, weak policy environment in addition to more frequent and intense droughts, my argument is that food security requires a mix of interventions that are aimed at strengthening access to food through both farming practices and the market. It is not the objective of the study to dismiss the importance of agriculture, but rather argue for livelihood diversification as an alternative strategy in drought prone areas. I concur with Baiphethi and Jacobs, that subsistence production can increase food supplies and thus cushion households from food price shocks consequently improving household food security (Baiphethi and Jacobs, 2009:462).

The chapter further expands on the previous section by discussing climate change as a threat on the future of smallholder farming. An overview on climate change, drought, mitigation and adaptation are presented. Having identified climate change as real threat to smallholder farming, I use this as a case to argue for diversification as an alternative or complimentary adaptation strategy in response to climatic variation. In the chapter, it is argued that with the myriad of challenges (climatic, financial, policy etc.) facing agriculture in Sub-Saharan Africa, smallholder farming alone is insufficient in ensuring food security. Given the relationship between food security and livelihoods, the chapter also investigates how rural households can effectively weather the effects of climate change through diversification. In the chapter, the argument is that efforts to aimed at increasing adaptation against climate change hinge on a package that places livelihoods at the centre.

3.1 Who are Smallholder farmers?

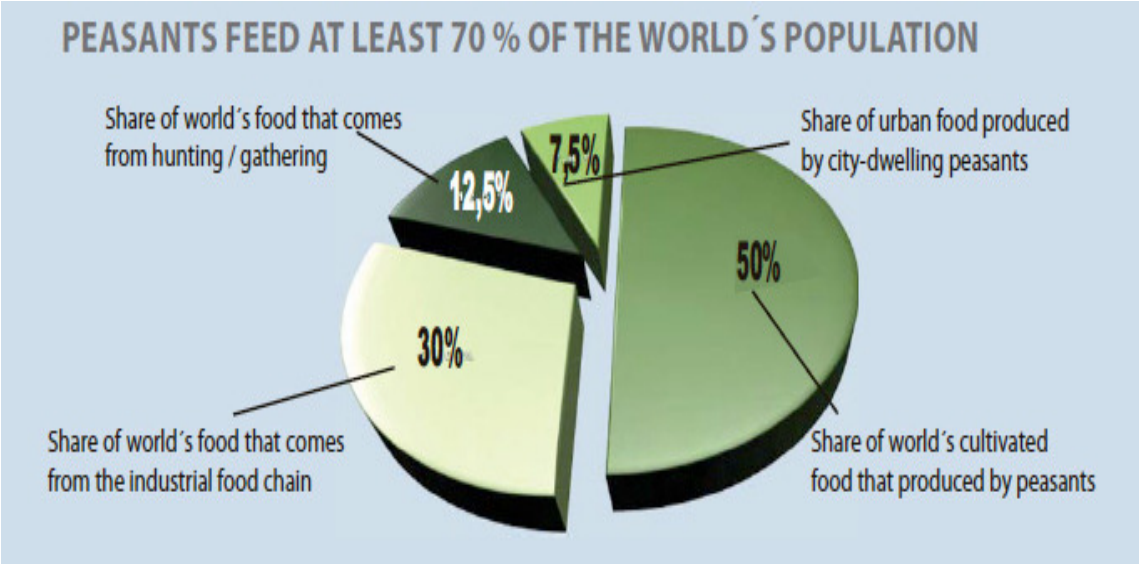
"Investing in agriculture and rural development, with a focus on smallholder farmers, is the best bet for achieving global food security, alleviating poverty, and improving human wellbeing in developing countries." IFPRI (2011:1)

Smallholder farmers are defined in various ways depending on context, country and ecological zone (Machingura, 2007: 8). For example, Dixon *et al.*, (2005) suggest that smallholder farmers face limited resource endowments relative to other farmers in the sector, whilst Todaro (1989) describes smallholder farmers as owning small plots of land on which they grow subsistence crops relying almost exclusively on family labour. A more comprehensive definition identifies one key characteristic of smallholder farmers as that they have access to land as means of livelihoods whilst relying primarily on family labour for production (Ellis, 1988). They produce for family consumption as well as the market. Subsistence farming has sometimes been equated to smallholder farming where the main output is consumed directly, few purchased inputs and where a minor proportion of output is marketed (Barnett, 1997). In some cases it generally refers to rural producers often referred to as 'small-scale', 'resource poor' or 'peasant farmers' predominantly in developing countries, who farm using mainly family labour and for whom the farm provides the principal source of

income (Cornish, 1998). However, definitions by scale are relative to national contexts, and "smallholders" in developed countries may have farms and incomes many times larger than those in developing countries (Morton, 2007).

In sub-Saharan Africa, most people in rural areas still value the pursuit of farming activities (Bryceson, 2000). Though they depend on small scale crop production to ensure food availability in their households, they struggle to sufficiently provide for their food needs. The ETC Group (2009) argues that 70% of the world's food is produced by smallholders or landless farm labourers (See figure 3.1). Despite climate change, pests, diseases, water scarcity, and myriad other challenges, smallholder farms produce a large proportion of the world's food.

Figure 3.0 Impact of Smallholder Farmers



The ETC Group 2009

3.2 Some General Constraints on Smallholder Agriculture

The underdeveloped and underperforming agricultural sector in Africa poses major challenges for attaining food security. The sector is characterized by over-reliance on subsistence and rain fed agriculture, low fertility soils, ecological degradation, significant food crop loss, low levels of education, gender inequality, poor health status, cultural insensitivity, natural disasters, minimal value addition inadequate food preservation (Mwaniki, 2005: 1-2). Below are some of the identified factors gathered from various literature sources:

Age

Age is one of the factors that can affect any farmer's chances of being successful in farming (Dlova *et al.,* 2004). It is suggested that older farmers are less capable of carrying out more physical activities than their younger counterparts. Younger farmers adopt modern technology quickly, are more adaptive and more willing than older people to try new methods which makes age an influencing factor. As farmers get older, they often become more conservative and reluctant to take risk consequently working fewer hours with also fewer non-farm employment opportunities (Bembridge, 1984).

Gender

Various studies have shown that women produce between 60 and 80 per cent of the food in most countries in the South and are responsible for half of the world's food production (Ukeje, 2004:6). However they struggle to gain access to resources such as land, credit and productivity enhancing inputs than their male counterparts. Dlova *et al.,* (2004) points out that males are physically capable of coping with the manual demands of farming practices than women who are also expected to perform domestic chores in the household. The exclusion of married women from decision-making activities of the farm even though their husbands were not farmers has an impact on the ability of the females to be successful. Given their role as food producers, managers of natural resources, income earners and caretakers of household food security, with women agricultural productivity may increase by as much as 20 percent when they are given the same inputs as men (Mwaniki, 2005:10).).

Education and Training

The low level of education among small scale farmers, especially women who form the bulk of the agricultural labour force has remained a major constraint to the adoption of modern farming techniques and the ability to access other inputs necessary for increased productivity in the sector. The importance of capacity building or investing in education was also underscored by Mwaniki (2005:9) and von Braun *et al.,* (2003:14). Both authors recommend that Africa should focus on education, research and development, access to capital in

addition to infrastructure development. Education would enable the acquisition of new information through sources such as newspapers, radio and extension programs which positively facilitates adoption of new technologies. In an example drawn from Malawi, educational investments helped smallholders enter into tobacco production. Better access to information, together with improved ability to use it may be especially valuable in improving productivity. With sound educational background farmers are better equipped to improve managerial ability as well as acquiring better information to improve marketing ability (Machingura, 2007).

Limited access to appropriate inputs, assets and technologies

Baiphethi and Jacobs (2009:18) argue for the need to increase access to assets, as household assets are the major determinants of these smallholder farmers' ability to participate in agricultural production, markets and to secure livelihoods. The use of improved inputs has been suggested as one measure of promoting intensification of production in light of the low productivity of agriculture in Africa (Reardon *et al.*, 1996). This can only be possible if farmers have easy access to input markets such as fertiliser, animal traction, organic inputs, and water and soil conservation technologies. Well-functioning markets will ensure that the benefits of productivity are passed on to the consumers (Baiphethi and Jacobs, 2009:471).

Household size

Due to low levels of mechanisation, smallholder farming depends on family labour, therefore the larger the family size, the more likely the farmer is to become successful. However, this would only work if all family members are old enough to perform the farm work, otherwise this will be difficult if the household size consists of a majority of young children who cannot be used as family labour (Machingura, 2007). In contrast, a study by Dlova *et al.,* (2004) interestingly suggests that farmers with bigger families are less successful than those with smaller family sizes. This is attributed to the fact that more resources are needed to feed, clothe and educate a larger number of children consequently leaving limited funds for farming expenditures.

Barriers to Market Access

In addition to barriers in penetrating the market due to limited resources, lack of information and supportive institutions and policies, access to markets in many smallholder farming communities is greatly constrained by poor infrastructure (Mwaniki, 2005). Smallholder farmers continue to contend with poor infrastructure which limits their ability to access lucrative high-end markets. However, when the same farmer wants to sell the produce to high-end markets, then objective standards such as size, quantity, and quality are imposed on them. In order to meet market standards there is need for information, capital, technology and expertise that the smallholder farmers have no capacity to meet without external assistance (Mwaniki, 2005).

Handicapping policies

Poor policies have greatly affected the food security in Africa. When policies are not inclusive in their design they tend to further handicap the poor. Policies to support smallholder productivity include ensuring increased to land and institutional support which lead to lower food prices, higher incomes positively driving socio-economic development in rural areas (Matshe, 2009:21). However supportive policies can only be effective if complimented by measures such as appropriate technologies, functional local markets, and seasonal finance, research and extension services.

Matshe (2009:504) highlights the importance of governments in creating conditions that could lead to a reduction in food insecurity through support to institutions, extension infrastructure, creation of an enabling environment (e.g. access to markets, inputs, machinery, knowledge, small business support, agricultural processing and credit etc.). These among other measures will not only be financially and economically profitable but also attractive relative to alternative uses of household resources outside cropping (Baiphethi and Jacobs, 2009:471).

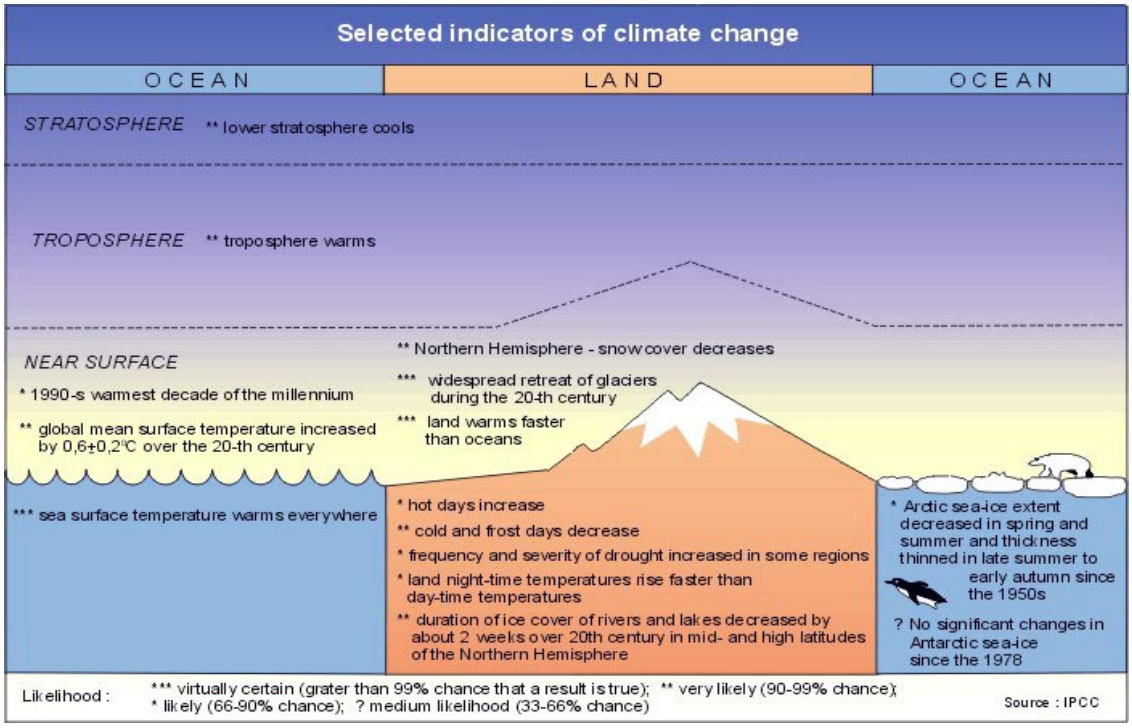
3.3 Understanding Climate Change and Drought

Climate change has been cited as probably the most complex and challenging environmental problem facing the world today (FAO, 2010). The problem is

further worsened by weather uncertainties, persistent climatic abnormalities, environmental degradation and consequent food insecurity exacerbated by increasing human population and demand for more agricultural land. The IPCC (2007) defines climate change as “a change in the state of the climate that can be identified (e.g. using statistical tests)…by changes that persist for an extended period, usually decades or longer. It includes any significant change in measures of climate such as temperature, precipitation, or wind lasting for an extended period (decades or longer). Climate change may result from: natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun, natural processes within the climate system or human activities that change the atmosphere's composition (e.g. through burning fossil fuels) and the land surface (e.g. deforestation, reforestation, urbanization, desertification, etc.)”

Various scientific sources have attributed climate change to human activities such as burning of fossil fuels, industrial production and deforestation that change the atmospheric composition by increasing the amount of greenhouse gases. Increased emissions of greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons) produced by human activities trap more heat in the atmosphere and thereby facilitating climatic changes (Hope, 2009:452). Figure 3.2 provides a diagrammatic illustration on the indicators of climate change both in the atmosphere and on land. The indicators include increase in the number of hot days, increased frequency and severity of droughts, decreased snow cover, glacier retreat, decreased number of cold and frost days and general increase in mean temperatures.

Figure 3.1 Climate Change Indicators



Climate change is expected to affect precipitation, temperature and evapotranspiration including the occurrence and severity of meteorological droughts. In assessing the future impacts of climate change it would be vital to also consider how changes in meteorological drought will affect soil water drought and hydrological drought (Van Lanen, 2007:1).

Drought is a sustained and extensive occurrence of below average natural water availability mainly caused by low precipitation and high evaporation rates (Van Lanen, 2007:1) Drought can be characterized as a deviation from normal conditions in the physical system (climate and hydrology), which is reflected in variables such as precipitation, soil water, groundwater and streamflow. Though drought is a lengthened period of rainfall deficiency (Wilhite and Glantz 1985), which causes widespread damage to crops resulting in low yields, it should not be confused with aridity, which is a long-term average feature of a dry climate, or with water scarcity (Tallaksen & van Lanen, 2004).

Climate change, drought and desertification are "separate but interlinked phenomena which makes it imperative to draw the distinction between (i) long-term regional climate change predictions provided by downscaled GCM outputs,

which typically show a warming and drying of southern Africa (Christensen *et al.*, 2007), and (ii) the occurrences of drought events, defined as multi-year events with rainfall significantly below a mean level" (Warren and Khogali, 1992, Stringer *et al.,* 2009:4). Drought events which maybe frequent can be a consequence of climate change but they are a distinctly different short-term meteorological phenomenon that is too often confused with climate change and desertification in the academic literature, popular press and policy debates (Thomas 1993).

Therefore, the consequence of global warming is not the change in the averages but the overall increase of extreme events such as droughts. It is now accepted that droughts in future pose a threat to climate sensitive economic sectors, specifically agriculture. In this study, climate change and the consequent droughts are recognized as threats to climate dependent livelihoods. Detailed analysis is undertaken on the dynamics of how households respond to droughts through diversification of livelihoods. With a particular reference to Hurungwe District, it is anticipated that the contextual analysis will also highlight themes than can be adopted for other contexts.

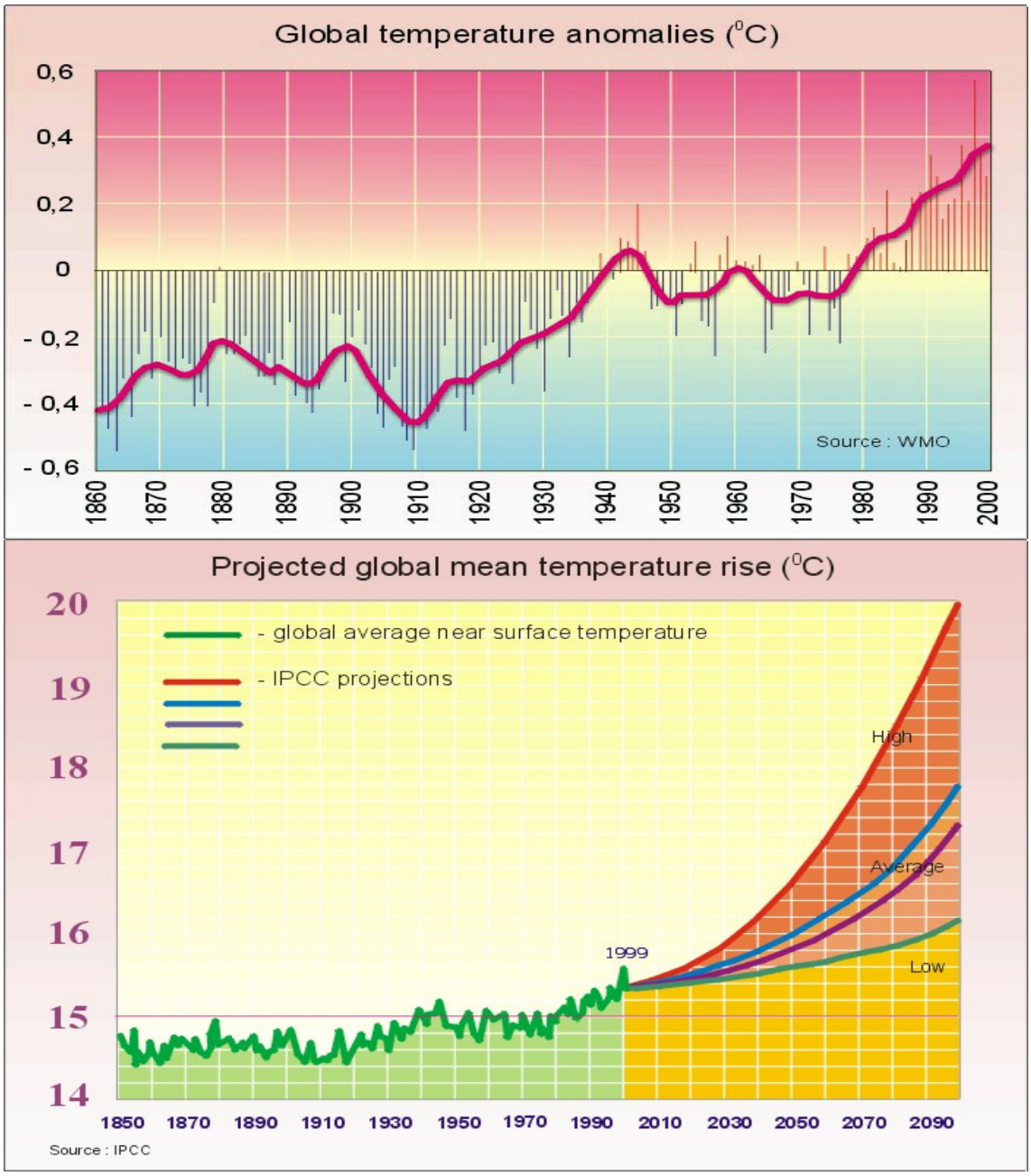
3.4 Understanding Climate Change in Africa

Africa is considered very vulnerable to climate change because of widespread poverty (Eriksen, O'Brien, Rosentrater, 2008). Collier, Conway and Venables, (2008:338) suggests that there is evidence that Africa is warming faster than the global average a phenomena which is likely to continue. Despite making the least contribution to the factors that accelerate and contribute to climate change, Africa is most vulnerable to climate change (Hope, 2009). Populations situated in marginal areas with very limited access to technologies for coping and adaptation are more vulnerable to climate change. Climate change is more likely to worsen existing poverty through reduced food availability, increased water scarcity, financial insecurity and incidence of illness.

Though the extent of and exact nature of the impacts of climate change on temperature and rainfall distribution patterns remain debatable, it is generally agreed that the poor are the most vulnerable and susceptible to changes in climate (Cooper *et al., 2008)*. Figure 3.2 confirms that global temperatures have

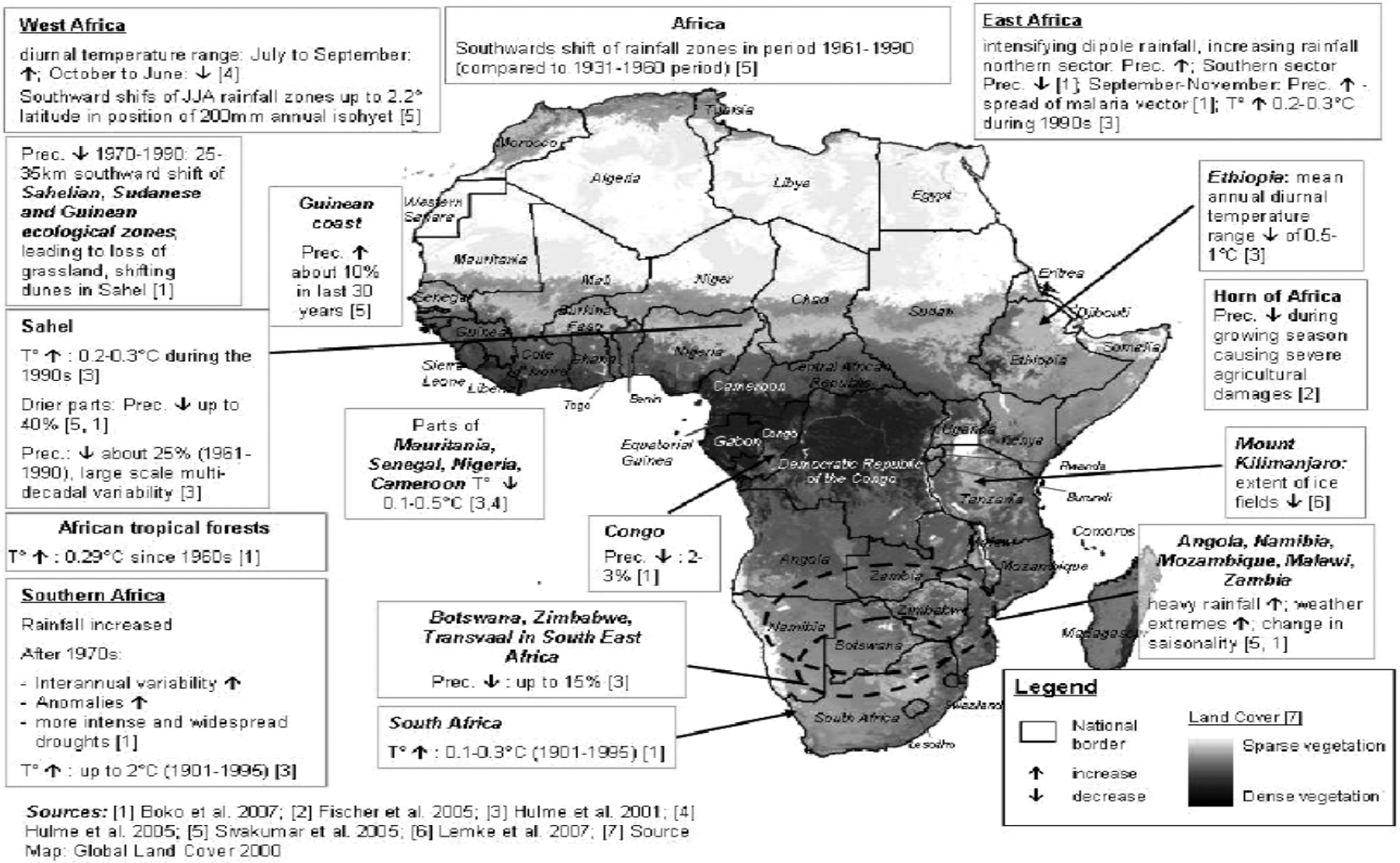
been increasing since the early 1980s. The IPCC also projects that mean global near surface temperatures will continue taking an upward trend as shown in Figure 3.2.

Figure 3.2 Global Temperature Anomalies and Projections



Various studies document precipitation trends in various parts of Africa. For example, decreasing rainfall and devastating droughts in the Sahel during the last three decades have been regarded as among the largest climate changes anywhere (Bates, *et al.,* 2008:80). Other projections on rainfall in Africa

indicate that rainfall along areas around the Mediterranean coast extending north of the Sahara will likely to decrease by 20% during the period 2080–2099 (Boko *et al.,* 2007). Rainfall reduction of 30% to 40% during the months of June–August is expected in Southern Africa, whilst a 7% increase in rainfall in tropical and Eastern Africa over the same period (Boko *et al.,* 2007; Christensen, *et al.,* 2007). Based on these trends, it is clear that declining rainfall and greater aridity caused by climatic changes have serious implications for the future development of Africa. Figure 3.3 below provides a summary of Observed Climate Change Impacts in Africa.



Sources: [1] Boko et al. 2007; [2] Fischer et al. 2005; [3] Hulme et al. 2001; [4] Hulme et al. 2005; [5] Sivakumar et al. 2005; [6] Lemke et al. 2007; [7] Source Map: Global Land Cover 2000

Global Land Cover 2000

Figure 3.3 Observed Impacts of Climate Change in Africa

It is of importance to note that, despite the growing consensus amongst climate experts concerning the emerging reality of climate change, predicting the exact rate, nature and magnitude of changes in temperature and rainfall is a highly complex scientific undertaking and uncertainty with regard to the final outcome of climate change and its impact still exists (IPCC, 2007). Whilst all climate change models agree that it will become warmer, the degree of warming predicted is quite variable, however, in many instances models do not even agree on whether changes in rainfall will be positive or negative. Climate change is indeed a reality with major impacts expected in the south. This has promoted intensive debate on emission reductions and ways to support adaptation efforts in vulnerable countries whose livelihoods are climate dependent.

3.5 Impacts of Climate Change on Agriculture and Livelihoods

Projections of climate change suggest that countries in the South will be affected the most because of their geographical and climatic conditions, high dependence on agriculture but more importantly due to the limited capacity to adapt. Widespread poverty, unavailability of social, economic, political and technical resources limits adaptation capabilities of communities and countries highly vulnerable to climate change (IPCC, 2007, Eriksen *et al.*, 2008).

Among the commonly cited impacts of climatic changes are decreased crop yields, increased pest outbreaks, rampant soil erosion and water logging. The expansion of both arid and semi-arid by 5% and 8% by 2080 in Africa may mean a reduction in large portions of agriculturally productive land (Boko *et al.*, 2007; IFPRI 2010). Consequently, climate change is expected to reduce cereal production in many countries in Africa.

As majority of poor people live in communities exposed to hazards such as floods, landslides or droughts in addition to lacking access to basic health services or infrastructure (Bailey, 2009), this means that their vulnerability is closely linked with poverty. Climate change will consequently worsen poverty levels among the poor who also have no access to safety nets or assets to use to cope in the aftermath of a climatic shock or natural disaster (Hope 2009:452). Based on this and the magnitude of the existing poverty, food insecurity,

environmental and health challenges faced by sub-Saharan communities; my view is that adaptation to climate change cannot be divorced from current development priorities aimed at improving food security.

3.6 Investigating Smallholder Agriculture and Climate Change

Small-scale farming provides most of the food produce in Africa, as well as employment for at least 70% of the working population (Challinor *et al.,* 2007). Smallholder producers already face numerous challenges due climate variability under current climates. Cropping practices that are often used to mitigate the effects of variable rainfall include planting mixtures of crops adapted to different conditions, using crop trash as a mulch, planting starvation-reserve crops as well as a variety of water conservation measures (Challinor *et al.,* 2007:388). Effects of climate change and climate variability such as droughts and dry spells, torrential downpours pose increased risk of soil erosion and vegetation damage through runoff in addition to higher temperatures. Though smallholder farmers in Africa have a tradition to adapt to climatic variation; endemic poverty, poor governance, limited access to capital and global markets, environmental degradation, complex disasters and conflicts may undermine their ability to adapt to climate change (Boko *et al.,* 2007). It is my view that as droughts become more frequent and severe, such coping mechanisms are rendered ineffective as farmers experience loss of seed stocks and draught power exacerbated by low capital reserves for coping. Thus, small scale farmers are only able to cope to a certain limit as erosion of capital assets in the absence of effective local or national level support mechanisms will worsen household food security.

3.7 Adaptation to Climate Change among Smallholder farming communities

'Adaptation to climate change is therefore no longer a secondary and long-term response option only to be considered as a last resort. It is now prevalent and imperative, and for those communities already vulnerable to the impacts of present day climatic hazards, an urgent imperative' (IISD, 2003).

Rainfall variability and uncertainty surrounding its annual reliability have prompted farming communities to adapt to dynamic climatic, environmental and weather conditions throughout history. However, the speed of current climate change is feared to exceed the limits of adaptation in many parts of the world (Adger and Vincent, 2005; IPCC, 2007). Additionally, climatic changes are taking place in the context of other developmental stresses, notably poverty, fluctuating oil prices, and food insecurity (FAO, 2006), as well as in combination with environmental change, drought and land degradation (Thomas *et al.*, 2007). This makes it essential to develop and implement effective adaptation measures so that climate-related risks and opportunities might support local development objectives (IPCC, 2007).

Chikozho (2010:3) suggests that… "Adaptation is a continuous sequence of activities, actions, decisions and attitudes that informs decisions about all aspects of life, and that reflects existing social norms and processes. It is fundamentally imbedded in the socio-economic and political realities of specific localities." Thus, adaptation implies a modification in human and other activities in adjustment to actual or expected changes in climate. In my view, adaptation is more about responding to climate change as opposed to preventing climate change through actions by individuals, organizations and governments.

Adaptation generally takes place at the micro- and macro-levels where farmers introduce practices at the local level influenced by factors such as seasonal climatic variations, the agricultural production system, and other socioeconomic factors; the government, NGOs, or private companies introduce practices nationally, and long-term changes in climatic, market, and other conditions influence their establishment (Nhemachena and Hassan 2007). However, it is also useful to distinguish adaptation from mitigation.

Nyong *et al., (*2007:791) defines mitigation strategies as activities that help prevent or minimize the process of climate change categorized into technological solutions and others those involving changes in economic structure, societal organization, or individual behaviour (Swart *et al.*, 2003). On the other hand, adaptation methods are those strategies that enable the

individual or the community to cope with or adjust to the impacts of the climate. These will include adoption of efficient environmental resources management practices such as the planting of early maturing crops, adoption of hardy varieties of crops and selective livestock breeding in low rainfall areas (Nyong *et al.,* 2007:791). Poverty and limited technical capacity have been identified as the major impediments to integrating mitigation and adaptation in developing countries, particularly in Africa (Michaelowa, 2001; Nyong *et al*., 2007).

From the literature reviewed, I notice that it appears much research on the impacts of climate change has tended to focus on impacts on a given region or country, with less effort has been directed at local communities and individual households in the South. As climate change research has largely focused on predicting impacts on agriculture and other economic activities, understanding vulnerability to adverse effects of climate change of individuals and households is often ignored. There is now increased confidence in predictions of climate change at global level, but there is still great uncertainty at local levels, where information is required by farmers to minimize vulnerability to climate change IPCC (2001).

3.7.1 The Role of Indigenous Knowledge in Climate Change Adaptation

Indigenous knowledge has been defined as institutionalized local knowledge that has been built upon and passed on from one generation to the other by word of mouth (Osunade, 1994; Warren, 1992). Indigenous knowledge is sometimes referred to as folk knowledge, traditional knowledge, indigenous knowledge, traditional environmental knowledge, indigenous traditional knowledge, indigenous agricultural knowledge, farmers' knowledge, rural people's knowledge, peasants' knowledge, ethno-science as it based on experience, often tested over centuries of use, and entails many insights, perceptions and intuitions relating to local culture and the environment (Onyango, 2011:3). It is the basis for local-level decision-making in many rural communities as it is both dynamic and complex, and not confined to knowledge about uses and products but also about processes. Indigenous knowledge though unique to a given culture or society has value not only for the culture in

which it evolves, but also for scientists and planners striving to improve conditions in rural localities (Mundy and Compton, 1991). One inherent feature is that the knowledge set is influenced by the previous generations' observations and experiment providing a connection to one's surroundings and environment. (Nyong *et al.,* 2007:792).

Farming communities through accumulated indigenous knowledge passed from generation to generation have known patterns of weather; how and when local natural disasters occurred; how to plan to cope with their impacts on the natural environment, livelihoods, and lives (Onyango, 2011:3). Indigenous knowledge has therefore been used as a critical knowledge base and survival tool for adapting to extreme climate events and other natural hazards. Many African farming communities have developed techniques and strategies for forecasting, and managing climate variability including coping mechanisms to respond to both normal and harsh conditions of their local environments. They base their forecasting on observation of the natural environment including flora, fauna and stars (Onyango, 2011) which have enabled them reduce their vulnerability to past climate variability exceeding those predicted by models of future climate change. However, this knowledge is rarely taken into consideration in the design and implementation of modern mitigation and adaptation strategies (Nyong *et al.,* 2007:1)

3.7.2 Integration of Indigenous Knowledge and Western Science in Climate Change Adaptation

Indigenous knowledge for adaptation to climate change may be described as knowledge unique to a given culture or society, acquired through accumulation of experiences of local people through informal experiments and intimate understanding of the natural systems stressed by climate change and socio-economic development. Traditional knowledge about how local populations have coped with previous droughts has the potential of providing important guidance for addressing current and future climatic events.

Green and Raygorodetsky (2010:239) quoting a statement by, World Bank Group President, Robert Zoellick acknowledged that "indigenous people carry a 'disproportionate share of the burden of climate change effects' and must be

included in international climate change discussions. Whilst, the design and implementation of sustainable development projects has realized the importance of indigenous knowledge, little has been done to incorporate this into formal climate change mitigation and adaptation strategies".

I concur with studies that confirm that climate change cannot be divorced from sustainable development, as sustainable development can only be holistic if it incorporates mitigation and climate change adaptation (Swart *et al.*, 2003; Cohen *et al.,* 1998). However, incorporating indigenous knowledge into climate change concerns should not be done as a replacement of western scientific knowledge but rather indigenous knowledge should complement and not compete with other knowledge systems. I also identify globalisation as a threat to indigenous knowledge systems as it promotes western models of addressing problems in the South. Globalisation by its nature has been championing western scientific knowledge that overrides contextual appropriateness and overlooks the existence of indigenous knowledge. As long as it is not easily accessible and highly contextualized, indigenous knowledge faces the risk of being downplayed and ignored through globalisation.

3.8 Off farm Livelihoods and Climate Change

In addition to frequently mentioned adaptation techniques such as varying crop varieties, adjusting timing of processes like planting, weeding, and harvesting, water conservation and irrigation, other common adaptation practices include diversifying one's income stream through off-farm activities and migration. A review of 17 studies covering data from more than 16 countries in Africa, the Americas, Europe, and Asia by the IFPRI (2010) revealed and classified common adaptation practices into five categories which are not mutually exclusive:

- Farm management and technology
- Farm financial management
- Diversification on and beyond the farm
- Government interventions in rural infrastructure, the rural health care services, and risk reduction for the rural population

- Knowledge management, networks, and governance

Given that the climate for agriculture is becoming more and more variable and unpredictable, it may become necessary for indigenous and traditional peoples to supplement their subsistence livelihoods with income gathering activities beyond agriculture in order to minimize their susceptibility to hazards (Macchi *et al.,* 2008:18). Diversification includes both non-agricultural livelihood strategies carried out on the farm, such as the sale of non-timber forest products, and activities that farm families undertake beyond the farm (i.e. petty trade or seasonal migration). Maintenance of a diversified resource base is a prerequisite for adaptation to climate variability as diversified livelihood systems allow indigenous farming communities to draw on various sources of food and income and in doing so, spreading the risks of vulnerability to climate change (Macchi *et al.,* 2008:18). There is evidence that households moving out of poverty are those moving either completely or partially out of farming, therefore "diversification out of agriculture has become the norm among African rural populations" (Ellis and Bahiigwa, 2003 ; Bryceson, 2000).

While some scholars question the relative importance of climate risks in influencing non-agricultural income diversification among smallholder farmers, Bryceson (2002) identifies the major drivers of diversification as structural adjustment, market liberalization policies as well as acknowledging that drought also has played a role in diversification in some cases. Though it is not easy to weigh different factors, smallholder farmers' urgent need to control the widespread risks in their livelihood system clearly is a strong driver of diversification. Non-agricultural income sources are by nature diverse and highly opportunistic, involving quick responses to market opportunities such that households typically pursue more than one activity simultaneously (Bryceson, 2002).

Despite facing numerous challenges, household production continues to be an important livelihood strategy in Sub-Saharan Africa (Matshe, 2009). Therefore, interventions that increase own production can go a long way towards addressing food insecurity, not only by enabling people to grow the food itself, but also by providing the means through which such food can be acquired.

Given the acute population and development related challenges faced by most African nations, many households will be forced to remain in the farming sector for livelihood and security for some time to come (Challinor *et al.,* 2007). This means households will continue farming as a semi-subsistence activity while cash is generated elsewhere.

In summary, communities who already have diversified livelihoods are less vulnerable to climate change or other factors which adversely influence their livelihoods and will have higher chances to successfully cope with future climate change than others (Macchi *et al.,* 2008). However as noted by Osbahr *et al.*, (2008), adaptation is not a mechanical adjustment to a current state but an iterative, dynamic, multi-scale, and multi-actor process. I suggest that the multi-actor character of adaptation means a variety of stakeholders, such as rural households, private businesses, NGOs, and governments at local, regional, national, and international levels play an important part. In this study, I argue for diversification of livelihoods as complementary to improvements in agriculture. It is through the maintenance of a diversified resource base that rural indigenous communities can spread the risks of vulnerability to climate change. Adaptation to climate among smallholder farmers will require strengthening linkages between farm and off farm livelihoods among rural households rather than replace one with the other.

Conclusion

Smallholder agriculture though presenting good opportunities to improve food availability and security in rural Africa has numerous socio-economic and political factors to contend with. In addition to a climate sensitive agriculture sector, heavy disease burden, conflicts and political instability, debt burden and unfair international trade system weaken efforts to improving smallholder agriculture (Challinor *et al.,* 2007). Despite the challenges posed by climate change, many development experts still identify agriculture as a sector that can make a significant contribution to poverty (Hazel and Haddad, 2001, Runge *et al.,* 2003).

Notwithstanding the above, recent studies have shown an increase in dependence on market purchases by both urban and rural households (Baiphethi, *et al.,* 2000: 459 and Ruel, *et al.*, 1998:11). It is estimated that food expenditures can account for as much as 60–80% of total household income for low-income households in some parts of sub-Saharan Africa. Due to variety of factors, increased dependence on food purchases from the market have been observed to be increasing (Ruel *et al.*, 1998:11-12). Farming though important for rural households is increasingly being complimented by activities meant to diversify opportunities and stabilise incomes. Consequently, rural livelihoods are based on a diverse array of activities and enterprises rather than agriculture alone (Chapman & Tripp, 2004).

In light of this, I am of the opinion that climate change poses a significant challenge to smallholder agriculture. There is need to better understand the nature and magnitude of the impacts of climate change on smallholder agriculture to help in the identification and development of practical means for enabling communities to reduce vulnerability and ensure food security. Increased support for small-scale agriculture will be pivotal but more focus is needed on securing livelihoods at the local, household and community level, with complementary policy and institutional support. This implies that support to smallholder farmers' adaptation efforts should go beyond providing access to inputs, land and water resources to natural resources management, accessing markets as well as information technologies that provide weather, crop and market alerts. Climate change and its devastating impacts on smallholder production clearly provide an argument diversification of livelihoods as an alternative strategy.

CHAPTER FOUR

RESPONDING TO FOOD INSECURITY: INVESTIGATING THE NEXUS BETWEEN LIVELIHOOD DIVERSIFICATION AND HOUSEHOLD FOOD SECURITY

4.0 Introduction

Among many development thinkers and agencies, sustainable livelihood approaches have found increasing reference as key to poverty reduction and improving food security. This has been linked to increased realisation that previous developmental interventions have been at the expense of the environment. From the outset, the study recognizes differences in the conceptualization of sustainable development. One underlying and common theme in the definitions centres on the need for addressing development goals without adversely impacting the environment. For example, Pearce (1986) sees sustainable development as a rational trajectory where people pursue and satisfy their current needs with consideration of those of future generations. Put differently, by the Brundtland Commission, it is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987:43). In summary, this may be interpreted to mean that we must be mindful that this world is not for us alone and that we are not the last ones to inhabit it.

Declining global terms of trade, climate change and population densities above carrying capacity present a bleak prospect for smallholder agriculture as a fulltime livelihood for rural communities. Many rural areas continue to face chronic food security, poverty and under-unemployment. There is growing consensus that rural economy is not based only on agriculture, but on a diverse portfolio of livelihood activities (Chapman & Tripp, 2004). Livelihood diversification is an important survival strategy for rural households, wherein while agriculture plays an important role, households are looking for diverse opportunities to increase and stabilize their household incomes, hence enhancing their livelihoods (Ellis, 1999; Carney, 1998). Rural non-farm income comprises all non-agricultural activities which generate income to rural households either through waged work or in self-employment (Davis, 2004:3).

Taking diversification to mean the transformation of the household or rural economy into new, mainly non-agricultural sectors, offers two contrasting perspectives in the discussion. One of the theories refers to livelihood diversification as a progressive and positive strategy of adaptation which can lead to accumulation by rural producers. The other views livelihood diversification as a residual sector that offers no more than a 'bargain basement' for distress or coping activities mopping up the failing smallholder agricultural sector (Davies, 1996). Off-farm income is important as it is used to purchase farm inputs and investment, hence increase food security (Reardon *et al.*, 1996:4).

In this chapter a broad overview and a conceptual understanding of sustainable livelihoods is provided. It is not in the scope of this study to discuss different views on sustainable livelihoods, but it examines strengths, weakness and implications of the sustainable livelihood approach. Later in the chapter, much attention is accorded to diversification, its determinants and implications on food security and poverty reduction. The aim of the chapter is to position diversification of livelihoods as key to addressing the impacts of drought on household food security.

4.1 Understanding the concept of Livelihoods

There are a number of definitions of livelihoods that have been put forward. Examples include; Chambers (1989: 7) who defined livelihood as "adequate stocks and flows of cash to meet basic needs". This was later expanded by Chambers and Conway (1992) who described livelihood as the capabilities, assets and activities required for a means of living. Though this definition does not clarify how these adequate stocks and flows of cash come about, Ellis (2000:10) in attempt to bring together various definitions defines livelihood as:

"A livelihood comprises the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household."

In their work, Niehof and Price (2001) define livelihood in terms of a system, which can be conceptualised as having inputs (resources and assets), output or livelihood, purpose (livelihood adequacy for meeting basic need), activities (livelihood generation and the composition of the livelihood portfolio), agency (efforts of households and individuals to achieve livelihood adequacy), quality (degree of vulnerability or sustainability of the livelihood, environment (context within which the livelihood system interfaces with other systems and institutions) and the locus which is the household).

Despite the many definitions of livelihoods available, the most widely accepted definition of a sustainable livelihood is that propounded by Chambers and Conway (1991 :5):

"A livelihood comprises the capabilities, assets and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; which contributes net benefits to other livelihoods at the local and global levels and in the short and long run".

From the definition a livelihood will encompass both cash and in kind income, social institutions (kin, family, and community networks), gender relations and property rights required for sustaining a given standard of living. Social networks are important for facilitating and sustaining diverse income portfolios. This does not exclude access to, and benefits derived from, social and public services provided by the state such as education, health services, roads, and water supplies etc. which also constitute livelihoods (Ellis 1998:3). However Carswell *et al.,* (1997: 10) notes that the "definitions of sustainable livelihoods are often unclear, inconsistent and relatively narrow. Without clarification, there is a risk of simply adding to a conceptual muddle…"

In summary, a livelihood comprises capabilities, material and social resources and activities required for a means of living which also takes into account the role played by structures, policies and processes in influencing the choice of

livelihood strategies by the rural poor. It is considered sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining its natural resource base (Scoones 1998:5). Taken together, these definitions reveal that the term livelihoods is a multi-faceted concept referring to what people do to make a living with the assets at their disposal and what they accomplish by doing it in a particular context (Niehof, 2004:322). The concept of livelihood is therefore about individuals, households or communities making a living, attempting to meet their various consumption and economic necessities, coping with uncertainties and responding to new opportunities (de Haan and Zoomers, 2005:28). A livelihood strategy would include activities that generate income to a household. It not only captures what people do in order to make a living, but also resources that provide them with the capability to build a satisfactory living, risk factors they consider in managing their resources as well as the institutional and policy context that either helps or hinders them in pursuit of an improved standard of living.

4.2 Evolution of the Sustainable Livelihoods Approach

The sustainable livelihoods concept was first introduced by the Brundtland Commission on Environment and Development as a way of linking socioeconomic and ecological considerations in a cohesive, policy-relevant structure (Krantz, 2001:6). The 1992 United Nations Conference on Environment and Development (UNCED) expanded the concept, and advocated for the achievement of sustainable livelihoods as a broad goal for poverty eradication. It stated that sustainable livelihoods could serve as 'an integrating factor that allows policies to address 'development, sustainable resource management, and poverty eradication simultaneously'.

However, with a focus on rural areas where people are farmers or make a living from some kind of primary self-managed production, the concept of sustainable rural livelihood was developed by Robert Chambers at the Institute of Development Studies (IDS) where in the 1992 discussion paper co-authored with Gordon Conway (Chambers and Conway, 1992), they offered a working definition which stated that:

"A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term" (Chambers and Conway, 1992: 7).

Chambers developed the idea of sustainable livelihoods with the intention to enhance the efficiency of development cooperation in light of the failure by conventional development concepts to yield the desired effects. His concepts constitute the basics for the Sustainable Livelihoods Approach (SLA), as it was developed by the British Department for International Development (DFID). The Sustainable Livelihoods framework is a holistic, asset-based framework for understanding poverty and the work of poverty reduction (Kollimar and Gamper 2002: 3). The guiding principles in the framework do not prescribe solutions or dictate methods but are meant to be flexible and adaptable to diverse local conditions (Serrat 2008:1).

People-centred: People rather than the resources they use are the main focus in the livelihoods approach. Since problems associated to development often rooted in adverse institutional structures that are difficult to overcome through asset creation only, sustainable poverty reduction means working together with people in congruency with their current livelihood strategies, social environment and capabilities (Kollimar and Gamper, 2002;3-4).

Holistic: Understanding household livelihoods as a whole with all its facets provides a holistic view. This might not be an exact representation of the way the world is, but rather a model to identify the constraints faced by people regardless of where these occur.

Dynamic: Whilst people's livelihoods and the institutions that shape them are highly dynamic, the approach is also dynamic in order to learn from changes and help mitigating negative impacts.

Building on strengths: Recognition of everyone's inherent potential for his/her removal of constraints is a major area of attention in the approach. This is meant to contribute to a household's ability to achieve its own objectives.

Macro-micro links: SLA tries to stressing the links between macro *and* micro levels. As people are often affected from decisions at the macro policy level and vice-versa, this relation needs to be considered in order to achieve sustainable development.

Sustainability: "A livelihood is deemed sustainable when it can cope with and recover from stresses, shocks and maintain or enhance its capabilities, assets, and activities both now and in the future, while not undermining the natural resource base."(Krantz, 2001:1 and Serrat, 2008) Therefore, according to DFID (1999), livelihoods are sustainable when they:

- Are resilient in the face of external shocks and stresses;
- Are not dependent upon external support (or if this support itself should be economically and institutionally sustainable);
- Maintain the long-term productivity of natural resources; and
- Do not undermine the livelihoods of, or compromise the livelihood options open to others.

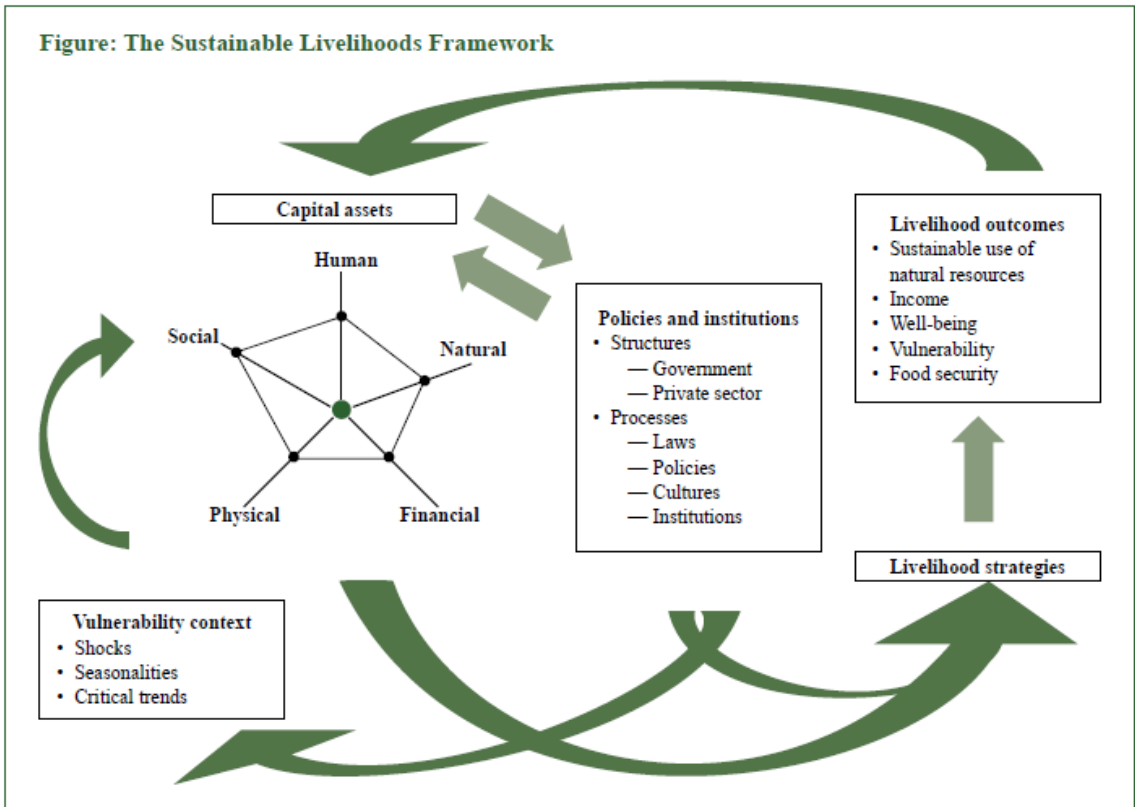
Scoones (1998:5), building on the definition by Chambers tied it more explicitly to the notion of sustainability by stating that "a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living". Any definition of livelihood sustainability has to include the ability to avoid, withstand and recover from stresses and shocks. In this context, stresses include pressures which are typically continuous and cumulative and such as seasonal shortages, rising populations or declining resources, while shocks refer to impacts which are sudden, unpredictable and traumatic, such as fires, floods and epidemics (Chambers and Conway, 1992:14).

4.3 Overview of the Sustainable Livelihoods Framework (SLF)

The SLF forms the core of the Sustainable Livelihoods Approach and serves as an instrument for the investigation of poor people's livelihoods. It provides a useful guide for the analysis on livelihoods suggesting that livelihoods comprise capabilities, assets and activities required to make a living. Livelihood assets and capital are used interchangeably as they are an important component of the SLF because they form the strength upon which people construct their livelihoods and achieve their goals (Bebbington, 1999).

According to Kollimar and Gamper (2002: 4), the framework in Figure 4.0 depicts stakeholders as operating in a context of vulnerability, within which access certain assets. These gain their meaning and value through the prevailing social, institutional and organisational environment known as transforming structures and processes. This context influences the livelihood strategies that are open to people in pursuit of their self-defined beneficial livelihood outcomes. The framework does not work in a linear manner but rather seeks to provide a way of thinking about the livelihoods of poor people which should help in identifying more effective ways to support livelihoods and reduce poverty.

Figure 4.0 The Sustainable Livelihood Framework.



DFID 2000

The concept of Sustainable Livelihood is an attempt to go beyond the narrow conventional approaches which have focused only on certain aspects of poverty, such as low income excluding other aspects such as vulnerability and social exclusion. The framework pays more attention to the various factors and processes which either constrain or enhance poor people's ability to make a living in an economically, ecologically, and socially sustainable manner (Krantz, 2001:6). It takes into consideration the context in which households and individuals operate (i.e. macro-economic, social, political, environmental, demographic, historical factors), livelihood resources available to households (i.e. economic, natural, physical, human, social and political capital); institutional processes and structures that operate within the communities; livelihood strategies that are pursued by households and the livelihood outcomes derived from these strategies (i.e. conditions of well-being, access to food, health, education, safety) are also depicted in the framework. See Table 4.0 below.

<table>
<tr><th>Assets</th><th>Modified By</th><th>Context</th><th>Result/effect</th><th>Characteristics</th><th>Impact</th></tr>
<tr><td rowspan="4">Natural Capital
Physical Capital
Human Capital
Social Capital
Financial Capital</td><td>Social Relations
Gender
Class
Age</td><td>Trends
Demographic
Migration
Technological change
Macro policy
Relative prices
National and global economic trends</td><td rowspan="4">Various Livelihood strategies</td><td>Natural Resource/Farm based strategies
Cultivation of food
Cultivation of cash crops (non-food)
Livestock production</td><td>Livelihood security
Increased
Income levels
Income stability
Degrees of risk
Seasonality</td></tr>
<tr><td>Institutions
Societal rules
Land tenure
Market systems</td><td rowspan="3">Shocks
Drought
Pests
Disease outbreaks
Floods</td><td>Non-Natural Resource/off farm strategies
Rural trade
Rural manufacturing
Remittances
Other transfers
Migration</td><td>Environmental suitability
Bio diversity
Soil and land quality
Water
Forests
Flora and fauna</td></tr>
<tr><td>Organisations
NGOs
Community based organisations/associations
Local Government</td></tr>
</table>

Table 5.0. The sustainable rural livelihoods framework. Source: Frank Ellis, 2000: Rural Livelihoods and Diversity in Developing Countries.

4.3.1 Household Vulnerability and Livelihoods

People's lives are dynamic and from time to time move in and out of poverty due to changes and influences from the environment they live in (Elasha, Elhassan, Ahmed, Zakieldin, 2005). This environment is referred to as the vulnerability context which forms the external environment in which people exist and gain importance through direct impacts upon people's asset status (Devereux, 2001). It comprises trends (i.e. demographic trends; resource trends; trends in governance), shocks (i.e. human, livestock or crop health shocks; natural hazards, like floods or earthquakes; economic shocks; conflicts in form of national or international wars) and seasonality (i.e. seasonality of prices, products or employment opportunities) (Allison & Ellis 2001; Ellis, 2000). People's livelihoods and assets are affected by trends, shocks and seasonality over which they have limited or no control (DFID, 1999). Vulnerability depends upon the assets that a household has and the extent to which the asset holders can adapt (Carney, 1998). Therefore, vulnerability is characterised as insecurity in the well-being of individuals, households, and communities in the face of changes in their external environment (Devereux, 2001).

However, it is important to point out that the same framework falls short of addressing the positive side of the trends that exist. Not all trends and seasonality must be considered as negative; they can move in favourable directions, too. Trends in new technologies or seasonality of prices could be used as opportunities to secure livelihoods (Carney, 2002). In other words, the term 'vulnerability context' suggests that these trends are directly or indirectly responsible for hardships faced by people, but it is not always the case.

4.3.2 The Role of Capital Assets in Livelihood Choices

The livelihoods framework is founded on a belief that people require a range of assets to achieve positive livelihood outcomes. The word "capital" has been used widely in literature for these assets, but not strictly in the economic sense, rather, the assets are best thought as livelihood building blocks (DFID, 1999). A central notion is that different households have different access livelihood assets, which the sustainable livelihood approach aims to expand. These assets include human, financial, physical, social and natural assets.

The aim of the livelihoods approach is to identify the strengths in the livelihoods of the most vulnerable groups in society that can be built upon according to their available assets in order to reduce poverty, rather than focusing on vulnerabilities (Ellis & Freeman, 2005). A range of assets is needed to yield the entire livelihood outcomes that people require. The livelihood assets, which the poor must often make trade-offs and choices about, comprise:

- *Natural capital* refers to the natural resource base (land and produce, water and aquatic resources, trees and forest products, wildlife, wild foods and fibres, biodiversity, environmental services). There is a close relationship between natural capital and the vulnerability context because most of the livelihoods shocks for instance are a result of natural processes that destroy natural capital. Understanding the available natural resources and preserving them for current and future use is important in achieving sustainable livelihood outcomes.
- *Physical capital* refers to assets brought into existence by economic production processes such as infrastructure (transport, roads, vehicles, secure shelter and buildings, water supply and sanitation, energy, communications), tools and technology (tools and equipment for production, seed, fertilizer, pesticides, traditional technology.)
- *Human capital* refers to the educational level and health status of individuals and populations. (i.e. health, nutrition, education, knowledge and skills, capacity to work, capacity to adapt)
- *Financial capital* refers to stock of cash that can be accessed to purchase either production or consumption goods. Two main sources of financial capital are available stock in the form of cash, savings, credit or debt, and regular inflows of money such as labour income, remittances or pensions. Financial capital can be converted into other types of capital that provide people with livelihood options and enable them to adopt different livelihood strategies and achieve livelihood strategies such as purchasing food or acquiring means of production (Cattermoul *et al.*, 2008).
- *Social capital* refers to the social networks in which people participate and from which they can derive support that contributes to their livelihoods. It places emphasis on people and the way they interact with

> one another and with systems within their communities. It represents the social resources upon which people draw on to achieve their livelihood outcomes (Ashley, 2000). Examples include networks and connections (patronage, neighbourhoods, and kinship), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviours, common rules and sanctions, collective representation, mechanisms for participation in decision-making and leadership.
>
> (Scoones 1995:6-7, Chambers and Conway 1992:10)

It is important to understand the dynamic nature of the five capital assets in sustaining people. For instance, while livestock is considered to be physical capital in providing animal traction, it can also generate social capital by providing prestige and connections in the community and still be a form of natural capital. In light of this, my suggestion is that there is need to recognize the livelihood capitals as inter connected rather than separate building blocks.

4.3.3 The Role of Structures and Processes in Shaping Livelihoods

Transforming structures and processes are institutions, organisations, policies and legislation that shape livelihoods, determine access to various types of capital (DFID, 1999) and also determine how assets may be utilised. Institutional and policy processes operate within specific contexts such as the people's history, climate change and other trends and shocks. Transforming structures and processes are of central importance as they operate at all levels and effectively determine access, terms of exchange between different types of capital, and returns to any given livelihood strategy (Shankland, 2000; Keeley, 2001).

Kollimar and Gamper (2002:8) describe structures as the hardware (private and public organisations) "that set and implement policy and legislation, deliver services, purchase, trade and perform all manner of other functions that affect livelihoods" (DFID, 2000). Structures are the public and private sector organisations that set and implement policy and legislation; deliver services; and purchase, trade, and perform all manner of other functions that affect livelihoods (Serrat, 2008:3). Complementary to structures, processes constitute

the “software” determining the way in which structures and individuals operate and interact. Processes embrace the laws, regulations, policies, operational arrangements, agreements, societal norms and practices that in turn determine the way in which structures operate (Shankland, 2000). Important processes for livelihoods include policies, legislation and institutions and also culture and power relations. These may serve as incentives for people to make choices, they may be responsible for access to assets or they may enable stakeholders to transform and substitute one type of asset through another (Kollimar and Juli, 2002)

Both structures and processes do influence people to make livelihood choices. It is important to recognise that while structures and processes are vital in transforming assets and enhancing livelihoods, they can be restrictive if they are not representative and pro-poor (Ellis, 2000). Transforming structures and processes occupy a central position in the framework and directly feedback to the vulnerability context.

4.3.4 Livelihood Strategies and Activities

Livelihood strategies comprise the range and combination of activities and choices that people undertake in order to achieve their livelihood goals. Put differently, they refer to coping and adaptive strategies that are employed by farmers. Decisions on livelihood strategies may invoke natural- resource based activities, non-natural resource based and off-farm activities, migration and remittances, pensions and grants, intensification versus diversification, and short-term versus long-term outcomes, some of which may compete. This means they have to be understood as a dynamic process in which people combine activities to meet their various needs at different times and on different geographical or economical levels, whereas they may even differ within a household.

Studies have drawn attention to the enormous diversity of livelihood strategies at every level-within geographic areas, across households and over time (DFID, 1999; Scoones *et al.,* 1998*)*. A common manifestation of this is at the household level where a member of the household lives in different places, temporarily or permanently through migration. At the same time, this member engages in

gardening and off farm work when they are in the household. Essentially, it is important to analyse households' and communities' strategies within their wider context (Scoones, 1998).

4.3.5 From Livelihood Strategies to Livelihood Outcomes

Livelihood outcomes are the achievements of livelihood strategies, such as more income, increased well-being, reduced vulnerability, improved food security and a more sustainable use of natural resources (DFID, 1999; Carney, 2002). These outcomes are usually a result of a combination of strategies people adopt at individual and community level and can show how people reacted to their context and utilised the various resources at their disposal. It is important to note that due the influence of structures and processes, different people and communities will combine resources differently to arrive at their desired livelihood outcomes. Therefore, the SL approach facilitates an understanding of the linkages between people's livelihood strategies, their asset status, and their way of using available natural resources.

4.4 A Critique of the SL Approach

Chambers (1995) and Hussein and Nelson (1998) point out that the poor often rely on a number of different types of economic activities for their livelihoods such that it is not any activity but their combined effect for the household economy that matters. In agreement with this, the SL approach depicts a variety of activities that people carry out, often in combination, to make a living (Serrat 2008). The SL approach recognizes that when constructing their livelihoods, people make use of a multiplicity of assets, through proposing a more holistic view on which resource combinations are important to the poor. By focusing on the variety of factors, at different levels, that directly or indirectly determine or constrain poor people's access to assets, and their livelihoods at micro and macro levels, the SL approach enables an understanding of the underlying causes of poverty. Furthermore, it suggests that these constraints might be a result of formal/informal institutional and social factors at the local level, or the outcome of policies, economic processes, and legislative frameworks at the macro level.

The SL approach also pays attention to how people develop livelihood strategies to achieve certain outcomes in response to a particular vulnerability context. This enables development agencies to design support activities that build on the strengths of the poor. It also makes it possible to see how even the 'poorest of the poor' are active decision-makers, not passive victims, in shaping their own livelihoods.

Finally, the concept of livelihood offers an appropriate basis for evaluating the socio-economic impact of projects or programmes which have poverty alleviation as one of their objectives, since it provides a more realistic framework for assessing the direct and indirect effects on people's living conditions than for example, one-dimensional productivity or income criteria.

However, one of the weaknesses I identify in the SL Approach is its silence on how to identify the poor as a necessary prerequisite for targeting of interventions. To address this, a whole battery of methodological tools are necessary in such as social analysis, participatory poverty assessments, gender analysis, stakeholder analysis, institutional given that poverty is a highly variable phenomenon necessitating the need to first acquire a basic understanding of the overall economic, social, cultural, and institutional context.

Secondly, the framework highlights the importance of social relations and institutions for livelihoods (Ellis, 2000) but fails to recognise that social assets are difficult to observe (Bebbington, 1999). There are instances where relations of inequality and power reproduce poverty at the local level. Informal structures of social dominance and power within communities influence people's access to resources and livelihood opportunities. In other words, my criticism is on how the approach fails to acknowledge social relations and institutions that act from the household, to the community and external to the community (Serrat 2008).

The livelihoods approach has also been criticised for its insufficient focus on gender, power relations and human agency (Serrat 2008:4). Individual or group action is influenced and modified by each other's action as well as by the

institutional arrangements forming the context of their action. Individual or group action affects and influences existing institutional arrangements and actions (Admassie, 1995).

One of the major challenges for operationalizing a sustainable livelihoods framework is how to quantify, compare and measure capital assets. The breaking down of people's livelihoods in terms of assets may have only a superficial value as not all assets can be generalized and expanded in an incremental fashion (Serrat, 2008:4). Baumann and Subir (2001) suggest that political capital be given equal status with other capital assets. However, it could well be argued that a sound definition of social capital would necessarily include a consideration of power and political relationships. The framework is also silent about the relationships between assets, of how the assets may change over time, or whether having high levels of one particular asset may compensate for low levels of another.

In light of the aforementioned strengths and weaknesses, I strongly believe that though SLA provides a good opportunity for analysing livelihoods and encourages participation among vulnerable people it does not provide universal solutions. As a model, the SLF does not represent the full diversity of livelihoods, which can only be understood by qualitative and participatory analysis at the local level. Effective application of the SLA and the framework requires appropriate modification and adaptation to suit local circumstances and priorities.

4.5. Understanding Livelihood Diversification

Livelihood diversification is defined as the process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living (Ellis, 1997:5). Very few people collect all their income from any one source, hold all their wealth in the form of any single asset, or use their assets in just one activity which makes diversification the norm (Barrett *et al.,* 2001:1). Livelihood diversification can be seen as an attempt by individuals and households to find

new ways to raise incomes and reduce environmental risk (Hussein and Nelson, 1998:3).

Livelihood diversification would include both on- and off-farm activities undertaken to generate income additional to that from the main household agricultural activities. Households may diversify through the production of other agricultural and non-agricultural goods and services, sale of waged labour, or self-employment in addition to other strategies undertaken to spread risk. Income derived from farm livelihoods comprise both consumption-in-kind of own farm output and cash income from output sold. Off-farm income refers to wage or exchange labour on other farms-i.e. within agriculture. It also includes labour payments in kind, such as the harvest share systems and other non-wage labour. Non-farm income refers to non-agricultural income sources such as (i) non-farm rural wage employment, (ii) non-farm rural self-employment, (iii) property income (rents, etc.), (iv) urban-to-rural remittances arising from within national boundaries, and (v) international remittances arising from cross-border and overseas migration (Barrett *et al.,* 2001:1-3).

From the definition by Ellis (1997) of rural livelihood diversification, it can be implied that prompted by survival or the need to improve their standard of living, households construct a diverse portfolio of activities and social support capabilities. They can combine a number of livelihood activities like agricultural crop production, livestock production, wage work, cottage industry etc. to provide or supplement income. The mix of activities will depend on a household's ability to access different livelihood opportunities (Ellis, 1997:5; Bryceson, 2002:731).

Migration is another livelihood strategy increasingly pursued by rural households. It may be seasonal, circular, rural-urban or international mediated by capital endowment of migrants and their households (de Haan 1999). Taylor and Wouterse, (2008: 627) suggest that "household members who migrate can facilitate investments in new activities by providing liquidity, in the form of remittances, as well as income security, in the form of a promise to remit to the household in the event of an adverse income shock." This means migrant

remittances can be useful in relieving rural credit constraints which may be viewed as a livelihood diversification strategy, as they are a source of income not related to household income from agriculture. Where formal insurance services and credit markets are not existent, migration can provide income that enable households cope with adverse income shocks as well as overcoming liquidity constraints. In a study on emigration to South Africa's mines by household members from Botswana, Lesotho, Malawi, Mozambique, Lucas (1987) noted that emigration reduces crop production in the subsistence sector in the short run, but remittances enhance both crop productivity and cattle accumulation in the longer run.

Despite little consensus on the degree to which remittances is used for rural investment, it is widely agreed that migration forms a central part of rural people's risk mitigation strategies. Therefore, migration though often ignored and sometimes blocked by policy and institutions, is a very important factor of diverse rural livelihoods that can lead to improved rural livelihoods (de Haan, 1999).

4.6 Classification of livelihood strategies

The level and nature of diversification is a crucial element of any discussion on livelihoods (Murray, 2002). Reasons for diversification as a livelihood strategy can be divided into two overarching considerations, which are necessity or choice. Necessity would refer to any involuntary and desperation reasons for diversifying. Examples include reduced access to land, declining crop yields, natural or civil disasters such as drought, floods or civil war resulting in dislocation and abandonment of previous assets, accidents or ill health (Ellis 2000: 291). Whilst choice would refer to voluntary and proactive reasons for diversifying such as taking advantage of seasonal wage earning opportunities, investing in children education, saving money to invest in non-farm businesses or the purchase of essential inputs or capital equipment for the farm enterprise. Necessity and choice are also viewed as survival versus accumulation, push versus pull factors in other literature (e.g. Hart, 1994, Barrett *et al.,* 2001:316, Davies, 1996:5). In the study the use of the term strategy refers to conscious and

coherent actions aimed at achieving something in the future, within a "relatively long-term perspective" (Niehof ,2004:322, Anderson *et al.,* 1994: 20).

In order for rural livelihoods to be sustainable, a household should at any given moment pursue a variety of livelihood strategies. This is possible when assets or capitals are convertible and substitutable e.g. social networks could cover up for a lack of financial capital at household level or a conversion of natural capital into financial capital (Bauman & Sinha, 2001:1). However, utilization of capitals or assets takes place within a context vulnerable to shocks and stresses which will affect the nature of livelihoods employed by the community. Livelihood strategies maybe categorized into three broad groups according to Orr*, (2001:1327)*:

i. Agricultural intensification which refers to strategies based on the exploitation of natural resources e.g. food crops, livestock. It also includes income from agricultural that is earned off farm (casual labour)

ii. Livelihood diversification which occurs when driven by survival and the need to improve their standard of living, rural households construct a diverse portfolio of activities. Diversification would mean expanding the share of income from non-agricultural activities or from income transfers.

iii. Migration whereby one or more family members leave the resident household for varying periods of time. Migration can be classified as seasonal, circular and permanent.

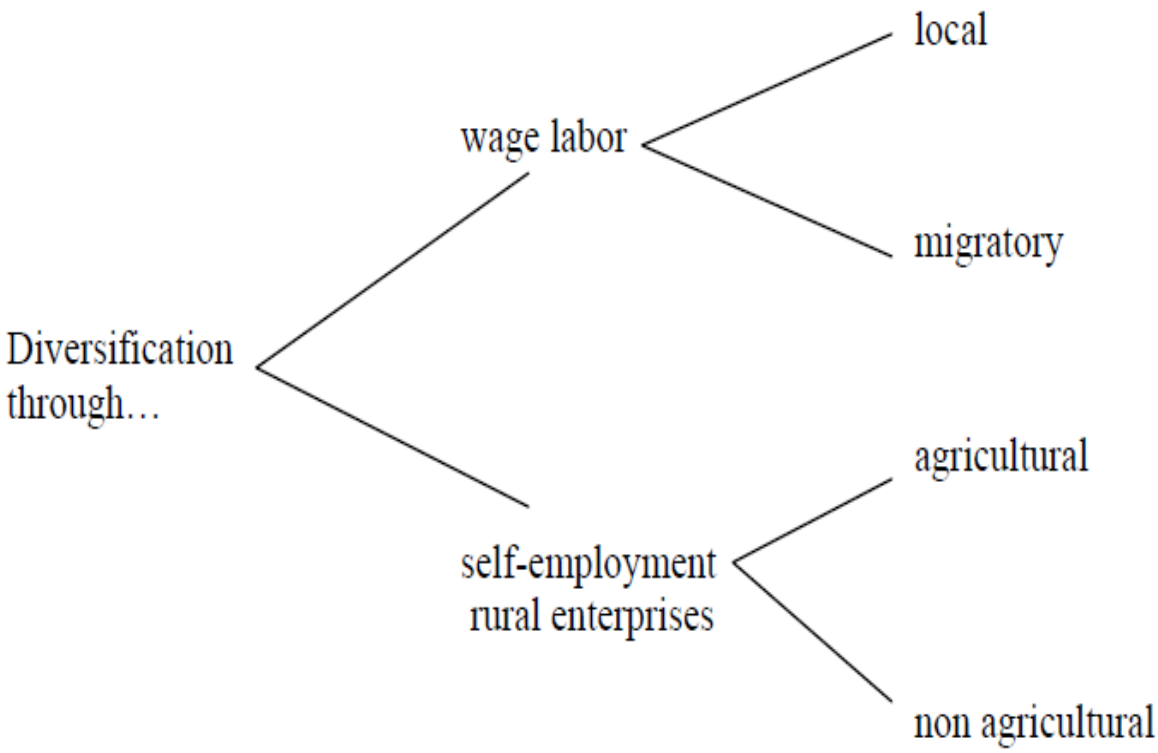
Though Hussein and Nelson (1998:10) propose the classifications of livelihood activities into: (i) farm versus non-farm; (ii) on-farm versus off-farm activities; (iii) local versus migratory and (iv) self-employment versus wage labour, Barrett *et al.*, (2001:318) notes that inconsistent terminology is common source of confusion when discussing livelihood diversification with the terms "off-farm", "non-farm", "non-agricultural", "non-traditional", etc. being used routinely in seemingly synonymous ways. The use of the term "rural nonfarm income" sometimes refers to nonfarm income (earned anywhere) by rural households, and other times they mean the nonfarm income earned only in

rural areas by rural households. There is need for clarity in the definitions used in the study of diversification behaviours (Barrett *et al.*, 2001:320).

Rural non-farm economy which comprises all non-agricultural activities that generate income to rural households can be classified on many dimensions such as: on-farm/off-farm, wage/self-employment, agriculturally related/otherwise (Davis, 2004:3; Davies, 2002:7). The ideal classification should capture activities closely linked to farming and the food chain, those producing goods and services for the local and distant market, and those producing for distant markets as well as those that are sufficiently large, productive and have capital to generate incomes above returns obtainable from farming.

From Figure4.2, wage labour refers to the provision of work force to agricultural or non-agricultural enterprises owned by non-household employers. Though employment opportunities may be available locally (local wage labour) or in spatially distant areas from the places of residence which may entail seasonal or long-term migration (migratory wage labour), both types of wage labour are diversification strategy which complements on-farm production in meeting household consumption needs as well as re-capitalization of impoverished farms. Self-employment enterprises refer to activities undertaken by mobilizing labour plus other household capital assets such as savings and land. These can be agricultural enterprises often based on innovative on-farm agricultural activities or non-agricultural enterprises focusing on activities such as processing of agricultural commodities, petty-trading, handicraft, cottage manufacturing.

Figure 4.1 Diversification Paths



Warren (2002:8)

However, there are differences in the way in which wage labour and self-employment impact rural livelihood strategies. Self-employment through rural enterprises is potentially more profitable than wage labour, although rural self-employment requires a higher capital risk (Woldehanna and Oskam 2001). In investigating rural livelihood strategies, it is important to note that as Carletto *et al.,* (2007:148) points out that:

"It would be misleading to see the growth in rural nonfarm activities in isolation from agriculture, as both form part of complex livelihood strategies adopted by rural households. High levels of income diversification are the norm among rural households. Rural nonfarm activities are often countercyclical with agriculture and, as such, may serve as a consumption smoothing or risk insurance mechanism, particularly when the returns to these activities are not highly-correlated with agricultural returns, and may also absorb excess labour during agricultural off-peak periods. Given the small-scale, informal and home-based nature of some rural nonfarm self-employment activities, they are often

heralded as a promising strategic complement to agriculture for rural poverty alleviation."

Because poverty in Africa is prevalent in rural areas, efforts towards increasing rural employment and income is crucial to fight the surge of poverty. Rural employment refers to activities that go beyond agricultural production on the farm to diverse livelihood strategies. An increase in rural incomes will likely improve the living standards of the rural poor, but also drive a structural transformation of the whole economy (Nkurunziza, 2006). The fact that agriculture is the main source of livelihood for the majority of Africans, Africa will need to develop its agriculture in order to feed its population but more importantly develop linkages with other sectors of the economy.

4.7 Motivation for Diversification

Why do households diversify?- Chambers (1997:162) suggests that in order to survive in risk prone and uncertain world, poor people have to diversify sources of livelihood. Multiple motives are suggested to prompt rural households and individuals to diversify assets, incomes and activities. These motives include risk reduction strategies, responses to household shocks, and asset accumulation strategies classified into two sets of motives i.e. push and pull factors.

Push factors include risk reduction, reaction to liquidity constraints and high transaction costs. From the "push factor perspective", diversification is driven by limited risk bearing capacity in the presence of incomplete or weak financial systems, constraints in labour and land markets, and by climatic uncertainty that create strong incentives to select a portfolio of activities in order to stabilize income flows and consumption (Barrett *et al.,* 2001:316).

Pull factors refer to the realization of strategic complementarities between activities, and specialization due to comparative advantage given by superior technologies, skills or endowments (Reardon *et al.,* 1998). From the pull factor perspective, "realization of strategic complementarities between activities such as crop-livestock integration" or "local engines of growth such as commercial

agriculture or proximity to an urban area (that) create opportunities for income diversification in productivity and expenditure-linkage activities" (Barrett *et al.,* 2001:316)

From the above classifications, household income diversification can be either seen as a matter of necessity and survival, where diversification is born out of desperation, or driven primarily by the household's poverty status. However, it can also be a matter of choice and opportunity motivated by a desire to improve household living standards. Ellis (1998:2) notes that, "It may be associated with success at achieving livelihood security under improving economic conditions as well as with livelihood distress in deteriorating conditions". Diversification can be a form of coping in a situation of stress (i.e. diversification for "bad" reasons) and is followed by depletion of assets, or it can follow after building capital and is done to strengthen livelihood (i.e. diversification for "good" reasons) (Niehof 2004:326,332; Block and Webb, 2001; Barrett *et al.*, 2001). Put differently, depending on the context, diversification can be should not only been seen from a survival perspective but also as evidence of improving household wellbeing.

It should be noted that, many rural people in Africa do not normally specialise in livestock, crop or fish production to the total exclusion of other income generating activities, but rather, diversify their productive activities to encompass a range of other productive areas (Hussein & Nelson, 1998:3). Motivation for such diversification though generally multifaceted, it takes on a different nature in different contexts with the following common features;

- It is sometimes a means to enable accumulation for consumption and investment;
- Sometimes employed to help spread risk, or to cope with temporary crises;
- Sometimes an adaptive response to declines in income or entitlements, due to serious economic or environmental changes beyond local control;
- It is specific to the local context (in relation to resources available, culture, natural resources, climate etc.);

- Often differentiated (types and degrees of diversification differ according to location, gender, age, class, and culture);

- Usually structured by a wide range of motivations, restrictions and opportunities;

- Often closely bound other livelihood strategies, especially agricultural intensification and migration;

(Hussein & Nelson, 1998:3)

Dimova and Sen (2010:1) point out that a large amount of literature has examined whether household income diversification is a means of survival or a means of accumulation, which have so far remained inconclusive. Therefore it is not possible to say whether or not rural people's engagement in livelihood diversification strategies is either a sign of failing livelihoods, or a sign of improving prospects for rural communities without considering the context. Whether diversification is driven by accumulation motives or is an attempt to cope with external shocks can only be deduced contextually. I concur with Nelson and Hussein (1998:17) that are a multitude of reasons to help explain why rural people diversify which are context dependent, and that livelihood diversification can lead to both positive and negative outcomes. Motivations include a desire to accumulate to invest, a need to spread risk, or maintain incomes, to a requirement to adapt to survive in eroding circumstances, or some combination of these. This makes it is difficult to generalize the effects and implications of such diversification across empirical case study data. In this regard, the study focuses on understanding livelihood diversification patterns in Hurungwe District.

4.8 Determinants of Livelihood Diversification

Diversification among rural households is mainly influenced by differences in resource endowments such as land, labour, capital including access to markets and institutions (Barrett *et al.,* 2001:326). Opportunities to diversity vary among households with asset portfolios determining whether the effects of diversification are positive or negative. Households may have similar

endowments and opportunities but do not always select the same portfolio of activities. Differences occur in preferences for income, consumption, wealth and status and risk in addition to subjective elements such as enterprise styles. However, a household's ability to adopt more profitable diversification strategies is also determined by it having the skills, location, capital and social connections to pursue other activities (Hussein and Nelson, 1998:10). Improving household food security and incomes may motivate a household to diversify, but the selection of actual strategies by a household is determined by some of the factors explained below.

Access to Markets

Diversification may be used as a risk management and survival strategy in instances where the absence of markets compels self-provision of some goods and services by households through diversification. To further explain this, Barrett *et al., (*2001: 321) provides a hypothetical example on why a skilled blacksmith spends his scarce time farming even though his comparative advantage lies in smith work. Missing land markets are used to explain his behaviour given that if land markets are operational, he might rent out or sell his land and devote all his time to blacksmithing. But in the absence of land markets, and in the presence of labour market imperfections that preclude his simply hiring others to work his land for him, his optimal use of labour time may well include time spent on relatively less productive farming, else his land asset returns nothing to him Barrett *et al., (*2001: 321-322). Therefore, diversification of labour activities and income in this instance would be driven by the absence of markets.

Several studies have also noted that where physical access to markets is costly and causes product markets failures, households diversify production patterns partly to satisfy own demand for diversity in consumption. In addition earnings from diversification where access to credit is non-existent can enable overcoming working of capital constraints, purchasing necessary inputs, equipment or capital improvements on one's farm (Barrett, 2001:321; Omamo, 1998).

Closeness to urban markets may create opportunities for diversification into rural non-farm activities such as peri-urban areas where possibilities exist for earnings from commuting (Davis, 2004:19). However, it should not be overlooked that in some cases, closeness to urban areas exposes rural non-farm manufacturers to high competition from factory-made substitutes sold in rural market centres. This may lessen the extent to which rural households can diversify.

Climate Variability

Climate variability affects farm production especially for smallholder farmers. Persistent diminishing returns from agriculture which threaten food security may prompt household to diversify. This implies that a key motivation for diversification is environmental uncertainty related to unreliable rainfall or drought which makes diversification "a form of self-insurance" Barrett *et al.*, (2001:322). In their study of livelihoods in India and Tanzania, Jodha and Mascarenhas (1983) refer to "household risk strategies" rather than livelihood diversification or livelihood strategies. Berry 1980 expands on this notion of risk (cited in Bernstein *et al.*, 1992:81) that "...diversification of income-earning activities is a key factor because farming in Africa is usually so risky: crop yields are subject to the uncertainties of rainfall and input supply, and farming incomes are subject to the uncertainties of both yields and prices."

This means the decision to diversify may also be driven by the need to cope with climatic variability or extreme weather patterns such as drought. Diversification is then seen as a natural response to climatic risk and transactions costs in lower potential agricultural areas (Haggblade, Hazell, Brown, 1989). When crops fail or livestock die, households respond by reallocating labour to other pursuits such as formal employment off-farm, informal employment off-farm (e.g. hunting), or non-agricultural activities on-farm (e.g. weaving, brewing). This is confirmed by Reardon (1992) findings from Burkina Faso, revealed that off-farm employment provided cash income in labour earnings to weather the effects of drought, thereby giving those with rural nonfarm incomes superior coping capacity.

Notwithstanding the aforementioned, whilst diversification is a natural response to climatic risk evidence, from Africa reveals that non-farm activity highest in areas of better-than-average agricultural productivity, which underscores the importance of taking into consideration intersectoral linkages (Haggblade *et al.,* 1989; Reardon, 1997). Depending on the context, this may mean nonfarm livelihood diversification maybe undertaken to complement farming activities rather than a substitute them. Climate variability may drive households towards diversification or hinder it.

Available Asset Portfolios

The availability of assets such as savings, land, labour, education, access to market or employment opportunities and other public goods is a primary factor in determining a household's capability to diversify Warren (2002:5). Opportunities to diversity vary among households (Mutenje *et al.,* 2010:341), with differences in resource endowments (land, labour, capital) and access to markets and institutions playing a central role in the extent to which diversification occurs (Barrett *et al.,* 2001). The extent of diversification of the household portfolio of activities is determined not only by asset portfolios but also by it having the skills, location, capital, credit and social connections to pursue other activities (Hussein and Nelson 1998:19). Consideration should also be given to how assets can be complemented given that some assets are only effective if combined with others (Barrett *et al.,* 2001:318).

Diversification may also develop as a coping response to the loss of capital assets needed for undertaking conventional on-farm production. As households face decreased availability of arable land, increased producer/consumer ratio, credit delinquency and environmental deterioration, diversification can be an immediate response (Warren, 2002:5). Consequently, the choices that people employ regarding the use of their asset portfolio in pursuing income, security, wellbeing or other productive and reproductive goals define their livelihoods.

A study by Webb and Block (2001) on diversification in Ethiopia revealed that level of assets owned i.e. livestock ownership is positively and significantly

associated with income diversification, even controlling for level of income. Assets are not only an essential factor of production representing the capacity of the household to diversify but indicators of improved household income. The findings confirm that households surviving the famine with higher than average income and food consumption levels also had a more diversified income base and more valuable assets in hand (especially livestock). In addition, greater income diversification (out of cropping) was positively associated with per capita income level, higher dependency ratio, location in the highlands, and ownership of non-farm assets

Warren (2002: 6) points out that diversification can be undertaken with the specific aim of strengthening the household asset base through accumulating savings needed to expand the land holding, offer education opportunities to the young generation, or insure themselves against illness and aging. This includes diversification occurring as a means to enhance the environmental sustainability of a particular livelihood strategy. However, one of the key questions facing researchers concerned with understanding livelihoods is about how diversification contributes to survival, vis a vis asset accumulation, and the relative proportions of diversification income which are used for consumption versus investment (Hussein and Nelson, 1998:17). Whilst it can be demonstrated that diversification provides income some of which is used for consumption, but researchers are at odds over the degree to which the remainder is used for investment in assets.

Education & Skills

Educational attainment has been identified as one of the most important determinants of non-farm earnings. The skilled and educated maybe self-employed or can secure stable long-term employment at relatively high salaries, while the unskilled and uneducated depend on more erratic, lower paying casual wage labour in the farm sector. Educational attainment can therefore serve as an entry barrier to better paying nonfarm employment or self-employment in rural Africa. (Barrett *et al.*, 2001:325)

Education is also critical since the better-paid local jobs require formal schooling and that there is a correlation between education with rural non-farm

business success (Davies 2004: 7). With the necessary education, migration is more likely to be successful. In a study on non-farm work and food security in Ghana, Owusu *et al.,* (2011) pointed out that schooling was an important determinant of participation in non-farm work. In particular, education and access to credit were found to be positively and significantly related to participation in non-farm work. However, the same authors note that it is not clear how schooling beyond primary level and the achievement of literacy and numeracy, provides skills that matter in the majority of rural non-farm activities.

Since access to education and low wealth status limits opportunities to diversify for poor households (Hussein and Nelson, 1998:19), diversification can also take the form of investing in human resources in the present in order to diversify the future resource-base of the (parental) household. Several studies have shown that investment in children's education can be a long-term livelihood strategy aimed at creating a source of income transfers for the parents when they reach old age. (Niehof, 2004:333)

Access to Credit Markets

Constrained access to credit and financial savings can hinder acquisition of assets necessary to diversify out of crop agriculture to non-farm activities. Restricted access to capital is the major obstacle to investment and entrepreneurship (Davies, 2004: 9). The poor are consequently left with less diversified asset and income portfolios, forcing them to bear both lower returns and higher variability in earnings. Ellis (2000:296) attributes low rural credit availability to high costs of setting up banking operations in rural areas, the difficulty and cost of securing adequate information on potential borrowers, the risk of default on loans, and the absence of collateral to put up against loans. This means credit market failures can also provide another motivation for diversifying livelihoods. In the absence of lending facilities, households will engage in activities that generate cash funds to be utilized in purchasing agricultural inputs or farm equipment (Binswanger, 1983; Reardon, 1997 quoted in Ellis 2000:296).

Smith *et al.,* (2001: 433) identifies lack of access to financial services or the lack of credit as a constraint to potential diversification into non-farm economic activities in two districts of Kumi and Rakai in Uganda. Despite the number of institutions engaged in this activity, lack of knowledge about credit providers, tight repayment schedules, high initial capital requirements, and the lack of loans for agricultural purposes represent barriers to access.

Gender Relationships

Diversification is also shaped by gender relationships. Women have the potential to undertake a similarly wide range of diversification activities as men, but in many contexts, men are able to avail themselves of diversification opportunities that are not open to women due to cultural constraints (Hussein and Nelson, 1998:8). Gender relationships can constrain or promote access to some household assets or the mobility of certain gender and age groups. This means that the degree of involvement in diversification activities and the unequal distribution of their benefits vary between genders (Ellis, 2000:295; Gladwin *et al.,* 2001). A study by Smith *et al.,* (2001:426) on determinants and patterns of diversification across two districts in Uganda revealed that, "in both districts, men had a greater degree of occupational livelihood diversification than women. Within the 'poor' and 'average' well-being groupings, women were mainly engaged in agriculturally-related activities, crop and small livestock production, cottage industries and some farm labouring. The men within these groupings were identified as the most active diversifiers, both in the range of livelihood activities, and the number practiced by individuals."

Historically African women are known to have been active in combining farm and non-farm income-earning activities as an adaptive strategy during periods of chronic or transitory food insecurity (Devereux, 1999; Maxwell and Frankenburger, 1992). Impediments to effective diversification by women are deeply ingrained in the cultural and socio economic set up in many societies where perceptions are that cash crops and income-earning activities are part of the male domain; while production of subsistence food crops consumed in the household are in the female domain. This means women food producers do not

have access to cash from the sale of cash crops with which to buy yield-increasing inputs (Due and Gladwin, 1991). African women tend to define themselves by their roles and social identities as the food providers in the household.

Gender is also a factor in the ability to access income-earning opportunities (Niehof, 2004:330) as women's ability to engage in income generation is also constrained by time-consuming activities they engage in due to a lack of environmental resources. In a study in Northwest Rwanda Von Braun and Wiegand-Jahn (1991:130) discovered that women's opportunities to find additional or alternative sources of income are limited by this external gender division of labour. Women grow food crops for subsistence and market excess food crops, on the other hand men engage mainly in cash cropping and off-farm activities. Fetching water and collecting fuel wood are activities that absorb most of the time of women and children.

Gladwin *et al.,* (2001:196) have argued that though women dominate many of the non-farm activities such as food processing and preparation, tailoring, trading etc., they still face powerful constraints which prevent them from generating much if any cash income. It must still be emphasized that the greater body of evidence suggests that diversification activities open to women are often less lucrative than those pursued by men (Gladwin *et al.,* 2001:194)

Seasonality

Seasonality, as an inherent feature of rural livelihoods is evident through varying returns to labour time i.e. income that can be earned during the year in both on-farm and off-farm labour markets (Ellis 2000:293). Furthermore, Niehof (2004 332) based on a paper on how the seasonal calendar explains the timing of migrant labour in India indicates that in rural communities the need for and possibilities of livelihood diversification depend on seasonal time. Seasonality causes changes in occupation to occur as labour time is switched from lower to higher return activities (Alderman and Sahn,1989: 82). For this reason, an important motive for income diversification associated with seasonality is to reduce seasonal income variability which then requires income earning opportunities which are not synchronised with the farm's own seasons.

Livelihood options for households that are influenced by seasonality include seasonal migration to other agricultural zones, circular or permanent migration to non-farm occupations (Alderman and Sahn, 1989).

Adaptation to Risk

One rationale for diversification is to create a portfolio of livelihoods with different risk attributes. (Hussein and Nelson, 1998:10; Reardon and Vosti, 1995: 1500–01). This implies that diversification may mean that households accept lower economic returns as long as there is greater security and lesser risk. Previous experience of crop or market failure can provoke diversification as a means of spreading perceived risk and reducing the impact of total or partial failure on household consumption (Warren, 2002:5). However such a decision may compromise productivity gains from specialisation. In situations where there are decreasing or seasonally varying returns to labour or land; imperfect markets for assets, finance and commodities, diversification can be an immediate response (Barrett *et al.,* 2001:323). With diversification, risk adverse households may choose the second best income-generating alternative which entails giving up a certain amount of income by diversifying rather than face a total failure hazard (Warren, 2002:5).

An example drawn from drought shocks of the mid-1980s in Burkina Faso reveal that households' capacity to cope with were strongly associated with the extent of their non-farm diversification patterns (Webb and Reardon, 1992). Therefore diversification maybe a response to shocks to income such as crop failure or livestock losses which may force households to reallocate labour to other pursuits, such as wage labour, informal employment off-farm or non-agricultural activities on-farm (e.g. weaving, beer brewing).

According to Ellis (2000: 294) whether or not risk spreading involves a fall in income, one of the critical motives of livelihood diversification for risk reasons is "the achievement of an income portfolio with low covariate risk between its components." Put simply, this means a household will try to ensure that that the factors that create risk for one income source are not the same as the factors that create risk for another income source. Diversification on the farm whereby a farmer takes advantage of differences in the risk-proneness of crops to adverse

weather is only partial. By contrast non-farm livelihoods also help in ensuring low risk correlations between livelihood components.

Local Economic Boom Opportunities

Ellis (2000: 294) points out site-specific opportunities such as local market contingencies, development projects, infrastructure development which play an important role in pulling rural household towards livelihood diversification. High returns to local nonfarm activities tend to occur in regions where there are booming activities in agriculture, mining, or tourism. Consequently consumption and production-linkages with the nonfarm sector are created which swell up demand for nonfarm goods and services (Readon *et al.,* 2006:8). The interplay among factors such as market dynamics and social capital assets often play a major role in generating opportunities for livelihood diversification.

4.9 Constraints on Livelihood Diversification

Hussein and Nelson (1998:19) point out that barriers or constraints on diversification involve a large number of interlinked and context dependent factors which can be summarized in figure 4.2 below.

Figure 4.2 Constraints on Diversification

4.10 Impacts of diversification

Livelihood diversification has both positive and negative impacts on agriculture. In the study, I recognize that by its very nature, livelihood diversification provides households the opportunity to increase incomes, reduce risks associated with climate dependent agriculture and consequently food security. However, as noted by Ellis (1999) diversification has both positive and negative impacts on households' way of life. These are explained below.

Positive Impacts

- *Seasonality:* which causes peaks and troughs in labour utilisation on the farm may lead to food insecurity due to the mismatch between farm income streams and continuous consumption requirements. Diversification can contribute to reducing the adverse effects, by utilising labour and generating alternative sources of income in off-peak periods. It would be misleading to see the growth in rural nonfarm income in isolation from agriculture as both form part of complex livelihood strategies adopted by rural households (Carletto *et al.,* 2007: 148). Such activities may serve as a consumption smoothing or risk insurance mechanism, particularly when the returns to these activities are not highly-correlated with agricultural returns, and may also absorb excess labour during agricultural off-peak periods.

- *Risk reduction:* Diversification enables spreading of risk across different activities whereby factors that create risk for one income source are not the same as those that create risk for another.

- *Higher income:* Diversification promotes making better use of available resources and skills (as in seasonality above), and taking advantage of spatially dispersed income earning opportunities.

- *Asset improvement:* Cash resources obtained from diversification may be used to invest in or improve the quality of household assets.

- *Environmental benefits:* Diversification can potentially provide environmental benefits by providing options that make time spent in exploiting natural resources.

- *Gender benefits:* Where activities are equally or better accessed by women, it is possible for diversification to improve the independent income-generating capabilities of women and in so doing, also improve the care and nutritional status of children.

Negative impacts

- *Income distribution* Diversification can be associated with widening disparities between the incomes of the rural poor and the better-off. This occurs if the better-off are able to diversify in more advantageous labour markets than the poor.

- *Farm output:* Some types of diversification may result in stagnation on the home farm especially when there are lucrative distant labour markets for male labour, resulting in depletion of the labour force required to undertake peak farm production.

- *Adverse gender effects:* Where it is male labour that is predominantly able to take advantage of diversification opportunities, then women may be even more relegated to the domestic sphere and subsistence food production. Baiphethi *et al.,* (2009) suggests that "one of the major impacts of livelihood diversification is feminization of agriculture, as men frequently pursue migratory labour opportunities." Consequently, women remain home to tend to home gardens and other agricultural tasks to ensure food production for the household. The empowerment of women may yield positive results as women are more likely to invest the additional income in children and family (Ellis, 1999).

The above positive and negative impacts of diversification do not downplay the potential of diversification to increase incomes and consequently food security

especially among farming communities. Whilst this study focuses on the impact of diversification on household food security, it provides fair attention to also investigating the negative and positive impacts of diversification. Therefore, it is my view that whilst diversification maybe promoted extensively, stakeholders should not lose sight of the potential negative impacts which can undo the positive impacts.

Conclusion

It has been noted that rural non-farm income represents on average 42% of rural income in Africa, (Davis, 2004:4). Whilst "poor households access their food from the market, subsistence production and transfers from public programmes or other households" (Baiphethi and Jacobs, 2009:459), an increased reliance on food purchases increases vulnerability to food insecurity as greater reliance on wage income discourages home production of food (Hendriks, 2005:116). This may lead to increased vulnerability to food insecurity in the event that food prices increase and wage opportunities decrease.

The discussion in this chapter affirms that livelihood diversification is among a majority of rural areas in the South. Faced with increased droughts and climatic variation, adaptation processes in among smallholder farmers are quite complex due to the influence and interplay of climatic, economic, technological, social, and political forces. I suggest that given the persistence of drought, poverty and its associated problems in rural areas, a critical reassessment of the impact of diversification on household food security is needed. Livelihood diversification activities are central to the construction of sustainable livelihoods and food security, and their importance will not diminish in the near future. Therefore the study will build on existing knowledge on the relationship between livelihood diversification and food security; it will provide a context specific analysis on the contribution of livelihooddiversification on household food security in response to drought.

CHAPTER FIVE

FOOD SECURITY AND LIVELIHOODS IN ZIMBABWE

5.0 Introduction

The chapter investigates food security issues in Zimbabwe with particular attention on the policy environment, general constraints on food security. The situational analysis will accord greater attention to the food security situation in Zimbabwe, investigating existing policies and structures and their effectiveness. Comparative studies on livelihoods in Hurungwe are also provided. As will be discussed in the chapter, food security in Zimbabwe cannot be divorced from the political, climatic and socio-economic developments in the current over the past decade. Zimbabwe once dubbed the "bread basket" of the region, has had to contend with acute foreign currency constraints, economic and political instability and erratic rainfall which have had adverse impact on household food security. In light of this, the purpose of the chapter is to provide a contextual overview of the food security situation in Zimbabwe at a macro level to enhance understanding on how these have affected the Hurungwe community as well.

5.1 Country Overview

Zimbabwe is a landlocked country with shared borders with South Africa, Botswana Zambia and Mozambique. In 2002, the National Census put the Zimbabwean total population at 11, 631,657 people on a land area of about 390 000 square kilometres and a population density of 29.8 persons per square kilometre. The population growth rate is 1.1 percent with about 65-70% percent of the population residing in rural areas. In recent years, Zimbabwe's urban population annual growth rate has averaged 5.9 percent. The structure of Zimbabwe's population has a high dependency ratio, with about 40.6 percent of the population under the age of fifteen years (Rukuni and Eicher, 1994; Chimhowu, *et al.,* 2010).

Agriculture dominates the Zimbabwean economy, contributing around 20% of the Gross National Product. The agricultural sector in Zimbabwe provides income to almost 75% of the population, accounts for 30% of formal sector

employment and 40% of total national exports (Rukuni and Eicher, 1994). However, limited resources and opportunities in the communal areas have accelerated rural-to-urban migration.

Manufacturing is partly dependent on the agricultural sector as a source of raw materials and about 70% of consumer expenditure is on products derived directly from agriculture (Rukuni and Eicher, 1994). The close relationship between agricultural development and national development in Zimbabwe is clearly demonstrated in how national growth rates have closely mirrored annual rainfall variations. For example, in 1987, when annual rainfall was low and the agricultural sector experienced a negative growth rate of 18.1%, the economy also suffered and recorded a negative growth rate of 0.7%. In 1988, when rainfall figures were high and agriculture grew by 25.5%, the economy grew by 6.3%.

In a paper presented at a three-day regional workshop on Trade and Development, Agro-Biodiversity and Food Security, the Environmental Management Agency reported that Zimbabwe is now experiencing an unprecedented series of extreme weather events which have serious implications on food security and the economy as a whole. It was also revealed that six warmest years on record for Zimbabwe have occurred since 1987 and that the increased frequency of droughts since 1990 (90/91, 91/92, 92/93, 93/94, 94/95, 97/98, 01/02, 02/03, 04/05, 06/07) causing massive drop in crop yields in the country's agricultural sector. Furthermore the inconsistent trend in rainfall data shows that changes in temperature and weather patterns were affecting the frequency and severity of rainfall, droughts, floods, access to water and the use of land (EMA, 2010).

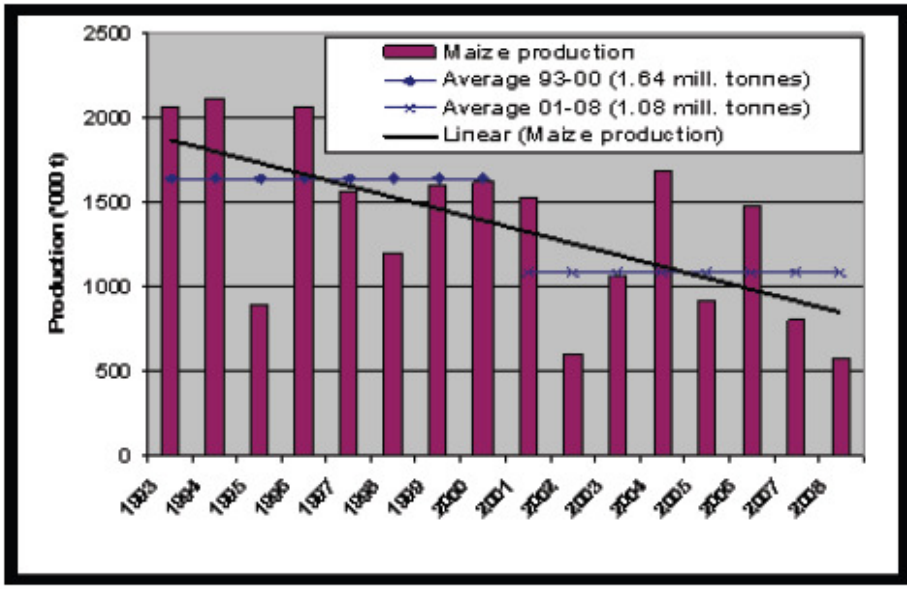
Socio-Economic & Development Profile

According to UNDP (2006:2), in the last six years, the country experienced a number of political, socio-economic and development challenges. Among these include recurrent droughts, food insecurity; strained relations with some members of the international community; a gradual decline of the economy characterized by hyper-inflationary pressures, high unemployment, and

shortages of basic goods and foreign currency. This further weakened the capacity of the country to deliver social services, especially to the most vulnerable segments of the population. The economic collapse saw a drastic fall in the gross domestic product by 40 percent between 2000 and 2007, and a further 14 percent in 2008. Inflation is estimated to have peaked at a record 500 billion percent in September 2008, while foreign currency reserves amounted to $6 million against a foreign debt of $6 billion (Chimhowu, *et al.,* 2010; Mudimu 2003).

Agriculture has historically been central to Zimbabwe's economy contributing 51% of export earnings in 2000. Sixty-five percent (65%) of the country's population lives in the rural areas, and is therefore directly or indirectly dependent on agriculture for employment and food security. In the past, Zimbabwe has been food self-sufficient and even exported surpluses to fellow SADC countries and others. The country coped well with the droughts of 1987, 1982 and 1992 through maintaining a strategic grain reserve that covered six-nine months (Mudimu, 2003:v). However, the economic collapse precipitated by the government's radical land reform programme which began in 2000 devastated large-scale commercial agriculture. Following the land reform programme, the large-scale commercial sector now produces less than one-tenth of the maize that it produced in the 1990s. Figure 5.0 illustrates the decline in maize production during the period 1993-2008 worsened by drought consequently necessitating the need for assistance targeted at the most vulnerable groups (Chimhowu, *et al.,* 2010; Mudimu 2003).

Fig 5.0 Zimbabwe maize production, 1993–2008



FAO 2008

Whilst economic and political stability is slowly returning, the radical land redistribution completely changed the land tenure and production systems in the agricultural sectors with profound impacts of livelihoods of many people. Government's ability to respond promptly and effectively to threats on food security such as drought still remains constrained (Mudimu, 2002) as the economy is still weak.

5.2 Food Security Policy Framework

In response to the recurrent droughts the nation was facing, the Government in 1995 established a Task Force for Food and Nutrition which was empowered by Government to develop a comprehensive national Food and Nutrition Policy (FNC 2010; Chimhowu, *et al.,* 2010). The FNC (2010:13) reports that since the 1980s, food and nutrition has been given high priority in Zimbabwe. Government has been encouraging a multi-sector approach and an elaborate food and nutrition management framework with structures at the National, Provincial and District levels. At the national level, a Food and Nutrition Steering Committee, comprising of a number of government departments

involved in food and nutrition issues was established. The Committee was led by the Ministry of Agriculture with membership from other ministries such as Local Government, Economic Planning, Education and Social Welfare.

In 1995, the Cabinet approved a food and nutrition policy framework entitled "Food and Nutrition Security with shared Economic Growth; a policy framework for achieving food and nutrition framework in the context of economic development in Zimbabwe". The policy acknowledged the need for a comprehensive policy and secondly the central role that food and nutrition security analysis plays for the development of a policy, the policy framework states:

"Existing food and nutrition information systems, including those of the Central Statistics Office, the Agritex Early Warning Unit and the National Health Information System, are fragmented, uncoordinated and inadequately analyzed to facilitate policy making to improve food security and nutrition". (FNC 2010: 14)

At the same time, in response to the extensive and recurrent droughts that the country was facing, initiatives were taken at the regional level to strengthen food security and vulnerability analysis. In 1999, the SADC established a Regional Vulnerability Assessment Committee (RVAC), a multi-agency committee that has spearheaded critical improvements in food security and vulnerability analysis at regional and country levels. The RVAC supported the establishment of ZIMVAC in Zimbabwe in 2002.During the 1990s, these structures were increasingly critical for understanding emerging vulnerabilities as a result of the national structural adjustment programme and the recurrent droughts that the country was facing (FNC, 2010).

However, despite facing resource and capacity constraints, the Food and Nutrition Council continues to function and has the mandate to "promote a cohesive national response to the prevailing household food insecurity and malnutrition through co-ordinated multi-sectoral action" FNC (2010:13). On a positive note, since 2002, there has been a gradual institutionalization of

ZIMVAC in the country in collaboration with a number of agencies and donors. Whilst ZIMVAC has played a critical role in supporting and leading a number of assessments and surveys in Zimbabwe, the absence of a clear way forward for food and nutrition security in the country, the scope and role of ZIMVAC and how it fits into nationally defined structures is not clear and not widely understood (Chimhowu *et al.,* 2010). There is general recognition that food and nutrition security in Zimbabwe needs to be analyzed with a longer term perspective (FNC, 2010:13).

Mudimu (2003:6) states that Zimbabwe has never had neither a clearly articulated agricultural policy nor one on food security until 2002 when the country came up with the Zimbabwe Food Security and Strategy for presentation at the FAO World Food Summit, 2002. Past strategies were based on political reactions to unfolding situations resulting in inconsistencies whereby one strategy contradicted another with respect to food security. Due to lack of a food policy, the strategies adopted did not follow or develop into a coherent framework for addressing food insecurity in the country. Prior to the year 2000, the Ministry of Agriculture made attempts to develop strategies on food security which were later aborted due to various reasons. These include the Zimbabwe Agricultural Policy Framework (1995-2000) and the Agricultural Sector Management Programme. Political interference has been a major problem for policy implementation with public agencies generally not accountable to the public (Mudimu, 2003)

Therefore, compounded with an unstable political environment, an unclear and weak policy framework, households in Zimbabwe have had very limited opportunities and support to improve food security through both farm and off farm livelihoods. Over the years much attention has been focused on the agricultural sector with very little or no attention be given to diversification of livelihoods especially for rural communities who perennially contend with drought and unreliable rainfall.

5.3 Small and Medium Enterprise Development Support

Of importance to note is that Zimbabwe has the Ministry of Small and Medium Enterprises & Cooperative Development whose mandate is to "to create and maintain an enabling environment that promotes vibrant SME sector" throughout the country with functions which include;

- Implementing the SMEs policy.
- Formulating policies for SMEs development.
- Developing legal and regulatory framework for SMEs development.
- Promoting, coordinating and monitoring innovative financing schemes for SMEs.
- Providing skills and management training that support entrepreneurship and small business growth.
- Facilitating linkages between large-scale enterprises and SMEs .
- Provision of business consultancy services to SMEs.
- Ensuring that infrastructural facilities are provided for SMEs.
- Researching into investment and marketing opportunities for SMEs.
- Administer the SME Empowerment Fund.
- Liaise with sector Ministries involved in the promotion of SMEs.

www.msmed.gov.zw

The Ministry executes its mandate through the Microenterprise Development Programme (MDP), Small Enterprises Development Corporation (SEDCO) and the Agriculture Development Assistance Fund (ADAF). With the exception of the MDP and ADAF, all the other facilities mainly target export oriented or relatively larger enterprises among urban populations. This means rural communities interested in pursuing non-farm livelihoods are left with the MDP whose funds are disbursed through mainly through Micro Finance Institutions.

Community Saving groups and village banks are also encouraged to participate but are generally constrained by requirements which include the submission of business plans and establishment of proper management structures. The ADAF is a short term loan facility for commercial farmers administered through the Agribank which automatically excludes rural smallholder farmers.

Though the Ministry is currently reviewing Small and Medium Enterprise Policy Framework whose main goal is "to generate sustainable jobs, reduce poverty and to stimulate growth and generate foreign currency earnings, thus contributing to the wellbeing of all Zimbabweans" (www.smesi.gov.zw), the greatest weakness is that these only target and are tailored to benefit urban populations. Due to budget limitations, the Ministry has been unable to fully execute some of its functions which include is implement the SMEs policy, formulate policies for SMEs development, Developing legal and regulatory framework for SMEs development as well as promoting and monitoring innovative financing schemes for SMEs. Consequently rural communities are excluded from any support in engaging in non-farm livelihoods. Over the years, NGOs such as World Vision and other welfare organisations have endeavoured on a limited scale to support diversification of livelihoods through a limited provision of asset loans i.e. small livestock, sewing machines, candle making and peanut butter machines etc.

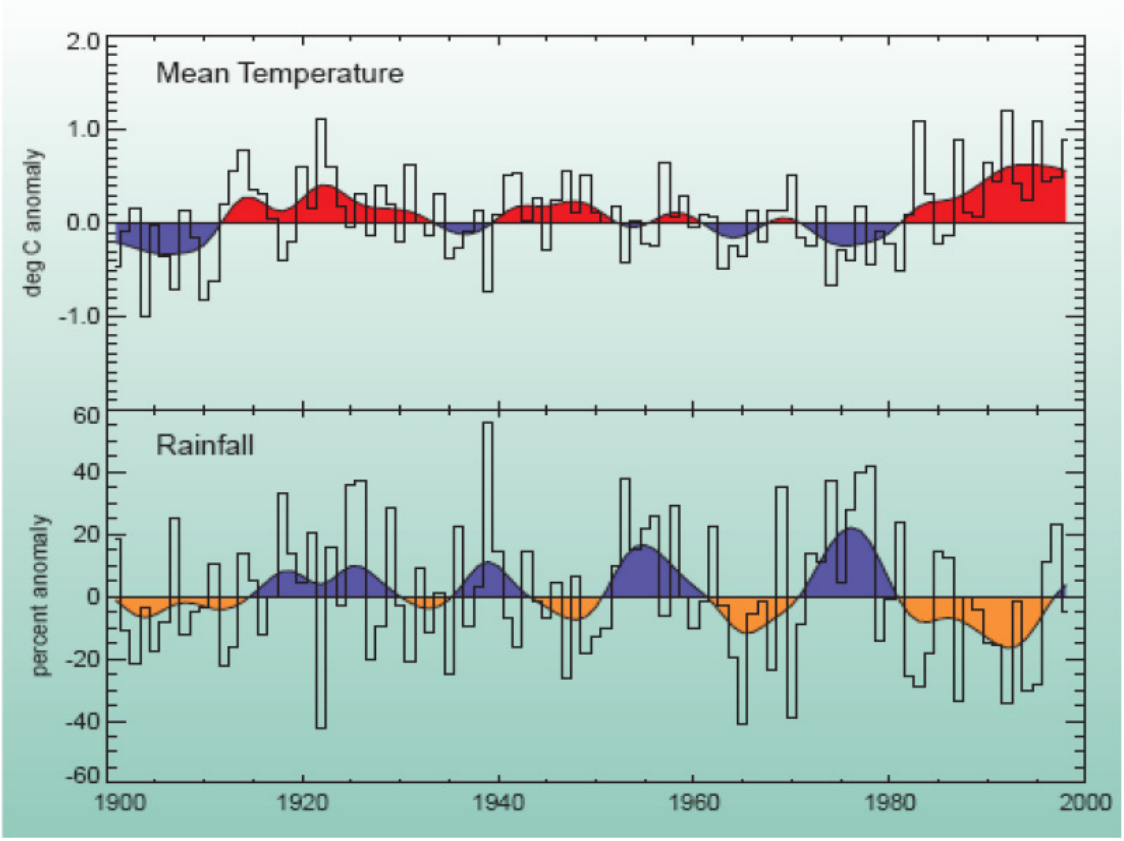
5.4 General Constraints on food security in Zimbabwe

A majority of the nearly 1.3 million families in rural Zimbabwe make a living through farm-related activities, although other non-farm non-agricultural activities are also increasingly important. The agriculture sector is the backbone of Zimbabwe's economy and has a strong influence on trends in GDP growth making it a key sector in determining overall economic performance and prospects for poverty reduction (Chimhowu, *et al.,* 2010:35). Political and economic developments in Zimbabwe over the past 10 years have posed serious challenges to household food security. Though food insecurity in Zimbabwe which is a usually a result of low farm productivity and low farm income among rural community households is also the result of an interplay of many complex

factors outlined below. Drought and other extreme weather patterns are also recognized to be an obvious threat to food security.

Figure 5.1 shows Zimbabwe's climate pattern from 1900 to 2000. The annual-mean temperature has increased by about 0.4°C since 1900, and the 1990s decade has been the warmest this century. The early 1990s witnessed probably the driest period this century, as the drought, related to the prolonged El Niño conditions, affected southern Africa.

Figure 5.1: Zimbabwe's National Temperature and Rainfall Deviation Patterns 1920 – 2000



Zimbabwe Department of Meteorological Service

Notwithstanding the aforementioned, below are some of the recognized constraints on food security in Zimbabwe.

Agriculture marketing system

Mudimu (2003:9-10) and Makamure , Jowa and Muzuva (2001:12) identify government's policy of stipulating that maize, wheat and their milled products were controlled commodities, and that the Grain Marketing Board (GMB) was the sole buyer and seller of maize and wheat. Despite GMB's monopoly, the maize deliveries to GMB have not increased significantly compared to those of previous years. This is due to (i) the low maize price offered by the GMB, (ii) the low volumes available for sale in the market and (iii) high demand for maize at prices in local markets in the producing areas that are higher than GMB prices, and (iv) farmers withholding their grain for sale later. In addition the GMB infrastructure has been unable to offer farmers an easy to reach market to sell their grain. Farmers continue to be reluctant to sell to GMB, which means that government reaction and response to the food deficit through the statutory instrument has not helped the food security situation (Mudimu, 2003:10). As government retained the right to determine the maize producer, smallholder farmers felt disadvantaged by the uncompetitive maize prices which led them to diversify into cash crops such as tobacco, cotton, groundnut, and paprika. This shift left the farmers exposed to food insecurity as they reduced area under maize which is a staple food.

The country initiated agricultural market liberalisation programmes in the 1990s whose effects included leaving smallholder farmers with limited marketing options for maize through the GMB and a few opportunistic private traders with market power. Benefits of liberalisation such as marketing opportunities and commercial lines of credit did not extend to the smallholder sector. The absence of enabling public infrastructure and missing agribusiness culture among smallholders created opportunities for predatory market players. Consequently, smallholder farmers were left to contend with low income realisations from the few available free marketing options. (Chimhowu, *et al.,* 2010:38). The food security situation in the country has also been compounded by the maize marketing monopoly in the hands of the Grain Marketing Board (Wiggins, 2004).

Treatment of smallholder farmers

Despite past measures to stimulate rural food production and incomes, food insecurity remains prevalent in the low rainfall communal areas. Evidence suggests past increases in food grain production and marketing had been both concentrated in high rainfall regions, and within these regions most of the marketed surplus is produced by a small proportion of the households (Stanning, 1989). Yet, strategies adopted had tended to treat the smallholder farmers as a homogenous group ignoring the unique technological and socio-economic needs of the farmers of different resource endowments. (Mudimu, 2003:7).

Technological constraints

Whilst large-scale commercial farmers are able to adopt the technologies that reduce the per unit cost of production, increase output and profitability, many smallholder farmers are not able to adapt the technology for their use. Mudimu (2003: 27) attributes this to several factors such as:

- Limited financial capital required to invest in the technologies such as improved seed, fertilizers and other chemicals.
- Some technologies and husbandry practices have been developed for large-scale farming systems and therefore require high-input and high managerial levels. Examples include early planting with supplementary irrigation, early harvesting with artificial crop drying etc.
- Large capital outlay for the procurement of machinery; therefore the alternative for the small farmers has been buying used equipment which has meant higher repair and maintenance costs.

Generally the farmers lack knowledge, training and appropriate skills to manage some of these technologies. Consequently they tend to be risk averse avoiding investing in capital-intensive production practices due to fears of crop failures caused by dry spells and droughts.

Draft Power and Labour Limitations

Many small farmers rely on household labour, cattle for crop production and manure for fertilizing the crop fields. The protracted decline in the economy since the year 2000 led households also to sell off assets such as livestock as a consumption smoothing strategy. However, lack of cattle undermines availability of draught power as well as compromising income and consumption smoothing strategies. Mudimu, (2003:30), notes that there is a direct relationship between draft animals, labour, and cropping area capacity. With a minimum of 6 head of cattle is needed to have a least 2 oxen for draft power, many households in communal areas do not have own cattle and thus have limited access to animal draft power which affects production.

Faced with limited draught power, small-scale farmers heavily depend on the family labour for agricultural production. During critical labour periods, namely at planting and weeding, labour requirements increase significantly and if not met can affect production levels. Apart from migration of the able-bodied persons, inability to hire labour by the smallholder farmers means that labour shortage is a limiting factor on production. Most able bodied young adults that provided family labour frequently leave rural areas for other countries in the region or have opted for non-farm rural activities like mining creating labour constraints on production at the family farm (Chimhowu, *et al., 2010:36)*. As a result there is increasing reliance on female household members who have other equally demanding reproduction and production tasks in the household. In addition, lack of skills has become a limiting factor as experienced and trained smallholder farmers have been dying off due to old age and HIV/AIDS significantly undermining the agricultural skills base (Mudimu, 2003:30, Chimhowu, *et al., 2010:36*).

Low Investment in Soil Fertility

Makiwa (2002) and Mudimu (2003:28) report that farmers have been finding it difficult to purchase fertilizers mainly due to exorbitant prices. Manufacturers and distributors of fertilizers are located in major centres that are quite distant

from the majority of smallholder farmers. As a result, the input supply services are costly and less reliable for the majority of the farmers. Coupled with lack of advice on the use of fertilizers which leads to under-application of fertilizers, market access is a key constraint to many farmers.

In areas where soils are generally of low fertility, they have to be limed to correct for soil acidity and then fertilized to correct for low phosphorus and potassium levels. However, investment in improved soil fertility is low due to financial constraints. The farmers use limited fertilizer quantities because it is expensive as it is not readily available. Generally, with controlled maize output prices, use of fertilizers is not profitable because of the low returns to maize (Makiwa 2002).

Financial constraints

Most farmers finance crop production from own financial resources due to inadequate working capital. Without adequate credit, the farmers cannot invest in productivity enhancing technologies e.g. fertilizers, chemicals for pest control and machinery. Commercial lending schemes for small scale farmers are unavailable because the farmers are considered high risk due to lack of secure collateral and high transaction costs. One option has been minimizing working capital requirements by reducing inputs use or cutting down production by reducing area under production (Mudimu, 2003: 28).

The radical land reform programme among other things resulted in lack of tenure security. Even if private financing was still available, financial institutions do not extend credit facilities to the resettled and communal farmers. Additionally the state and agricultural commodity brokers have struggled to meet adequately provide finance to smallholder farmers. Financial support to large scale commercial farmers also stopped following land invasions which further worsened the food security situation in the country. (Chimhowu, *et al., 2010:36*)

In addition to limited access to inputs, the demise of commercial farming also meant some smallholder farmers who could seek temporary employment on farms and used this to purchase inputs had content with increase food insecurity. Others relied on urban formal employment to generate the inputs. However, the collapse of the economy also saw a drastic decline in the availability of formal sector jobs.

Marketing constraints

Small-scale farmers face high transaction costs in the marketing of agricultural products and accessing inputs (Attwood and Takavarasha 1990). While the main and feeder road networks are generally good, the farming areas are poorly served by external transportation systems with frequent breakdowns resulting in loss of time and delays in marketing of produce. Transportation charges are high taking 25-40% of the crop value in addition to the high transaction costs that affect real incomes of households in rural areas.

The hyper-inflationary environment that prevailed around 2007-2008 gravely affected returns on agriculture (Chimhowu *et al.,* 2010). This meant that most people who used to produce for the formal market were reluctant to do so as the delays in processing payments meant that the money they were paid was quickly eroded and worth nothing. Consequently, households that produced for the markets had to stop and produce mostly food crops for subsistence.

Mudimu (2003) further points out that limited marketing information in situations where farmers market through traders have meant that farmers are limited in bargaining strength. They are reduced to "price takers" due to the relatively low volume of marketed output. Thus, the farmers are not in position to benefit directly from higher product prices that the markets may offer. Low education levels and underdeveloped infrastructure for radio and television informational systems limit the ability of the farmers to receive and utilize market information.

Arable land holding

Not all the land available to a household is utilized for food production due to the subsistence nature of the farm practices, where small areas of land are required to produce subsistence food. This implies that a major factor determining total output small holder farmers is the area under cultivation and not the available arable land (Mudimu, 2003: 30). Limitations in the availability of arable land means that households with small pieces of land holding do not have access to adequate operational land for crop production which allow proper crop husbandry, i.e. rotation and replenishment of fertility through fallow. Many farmers are then constrained in undertaking large-scale farming operations due to low levels of resource endowments such as labour, draft power and capital. Therefore, the actual area cultivated depends mainly on the level of household resource endowment and system of production (SADC, 2002). Land fragmentation whereby households have 2 - 3 land parcels is also major constraint for efficient use of labour and animal draft power given the distances to be travelled which amount to unproductive use of time, thereby increasing the cost of production.

5.5 Overview of Selected Studies on Livelihoods in Zimbabwe

Achieving and ensuring food security still remains a challenge in Zimbabwe for rural communities whose livelihoods are farm-based. As noted by Matshe (2009:10): “Declining agriculture performance is a major driving force behind growing poverty among African smallholder farming populations, and its recovery offers the greatest prospects for rural populations to escape out of poverty.” This means opportunities for rural non-farm employment and income generation remain key in contributing to increased food security.

Diversification in rural Zimbabwe takes many forms. Jackson and Collier (1991:29) observed that rural Zimbabweans often decide to change their crop mix or alter the balance between crop and livestock activities to spread the risk of income failure. A number of studies on income diversification in Zimbabwe have revealed that in remote areas, non-farm income sources increase income

inequality but in areas better connected to the large urban markets, that it decreases income inequality. They suggest that in rural areas less well connected to urban centres, the agrarian power structures allow those with higher farm incomes to better exploit non-farm income sources. Better access to urban markets increase opportunities for non-farm employment leads to equalizing of income Ersado (2003:4). An important study by Kinsey *et al.,* (1998) on 400 resettled households in rural Zimbabwe over a 13 year period and found that income diversification is a common coping strategy during times of drought. However income sources that are easily tapped are low return activities such as day jobs or agricultural piecework.

5.5.1 Livelihood Patterns among Resettled Households in Zimbabwe

Chimhowu and Hulme (2006) undertook a comparative study on livelihood patterns among communities in Rengwe and Nyamakate areas in Hurungwe. Field evidence revealed variations in the levels of diversification between the two areas and also among the different income and wealth groups in each area. Non-farm and off-farm income activities emerged as important differentiating factors among the households in Rengwe and Nyamakate. In addition to assets such as land and cattle, the availability of non-farm and off-farm income receipts was key in distinguishing the poor households from those of average wealth.

Findings from Nyamakate

- The proportion of crop income was 80% in Nyamakate as compared to 68% in Rengwe

- Farm related earnings provided most household income in Nyamakate because the terms under which land was accessed in Nyamakate required that the land be utilized for crop production. Diversification within agriculture was more evident in Nyamakate where non-poor farmers had begun to venture into high return and high-risk crops like tobacco and high value industrial beans. Crop income was the single most important source of income constituting 77% of total income for the poor compared with 88% for those classified as non-poor.

- Non-poor households in Nyamakate diversified mostly within agriculture by changing their crop mix and engaging in off-farm activities that did not take them away from the resettlement areas. Despite the heavy reliance on crop income, investment in retail trade, services, and the transport sector were identified as common among those venturing outside agriculture in Nyamakate.

- Households classified as "very poor and poor" in Nyamakate diversified differently from those in the non-poor group. Households classified as very poor displayed a higher level of diversity of income sources compared with the non-poor. Although crop income still dominated, significant contributions came from off farm and non-farm activities.

- Poor households in Nyamakate had diversified in response to failing livelihoods rather than to seize opportunities. Lack of inputs, poor commodity prices, and frequent droughts combined to force households to look for a diverse range of activities.

Results from Rengwe

- Households classified as non-poor had more diverse income sources compared with Nyamakate. They earned only 56% of their income from crops compared to the 74% earned by the very poor.

- Non-farm activities contributed 19% of income for non-poor households compared with 11% for the very poor. This low level of earnings from non-farm income sources was explained by the barriers to entry into these kinds of activities in Rengwe and the limited opportunities available in a remote frontier region which is compounded by a general lack of essential infrastructure.

- Non-farm activities contributed three times more income in Rengwe than in Nyamakate. Agriculture related but off-farm activities such as repair of farm equipment and trading contributed four times as much income in Rengwe than in Nyamakate. Therefore the dominance of crop income at household level in Rengwe was lower than in Nyamakate.

- In Rengwe, both economic and environmental marginality significantly limited the scope for pursuing off farm activities for poor households. Lack of access to savings and formal credit further constrained participation by the poor in non-farm and off farm. In contrast, non-poor households took advantage of opportunities to diversify out of agriculture.

- Unlike in Nyamakate, local NGOs set up semi-formal micro-finance institutions supporting non-farm income activities among the poor households in Rengwe.

The above findings confirm research elsewhere in Zimbabwe showing that access to productive assets, markets, credit are a differentiating factor among rural households in communal areas (Jackson & Collier, 1991; Kinsey, 1999). Worth noting is the point that, Nyamakate was established as a dry-land farming settlement making only possible within agriculture. These restrictions initially constrained diversification and may have restricted the development of alternative income sources. In Rengwe, there were no restrictions on how households could construct their livelihoods. This freedom is reflected in the diversity of livelihoods in Rengwe. The diversity reflected in the income sources was therefore in part a way of spreading the risk of impoverishment and destitution in this uncertain environment. (Chimhowu and Hulme, 2006:736-738)

5.5.2 Livelihoods and Poverty in Remote Areas

In a study on Livelihoods and Poverty in semi-arid regions in Zimbabwe, Shepherd and Bird (2003) broadly highlighted that nonfarm and wage income were important income sources for a large proportion of households, and remittances for some. However, the main economic activities pursued by severely poor households differed substantially from those pursued by the non-poor, as did their major sources of income. Therefore, poor and severely poor households were much more likely to be solely engaged in farming or in a mix of natural resource-based enterprises, or in activities with low social status (casual

labour), a high degree of drudgery (beer brewing, construction) or with low entry barriers and returns to labour ("services").

Due to poorly functioning markets, households were more dependent on retained agricultural output and generally less likely to be strongly engaged in markets. Higher income households typically received more wage and remittance income. For the livelihood portfolios where significant numbers of severely poor households were concentrated, there was a considerable range of incomes derivable from most livelihood portfolios, suggesting that no particular livelihood strategies were intrinsically any better than any others. Some of these portfolios were accessible to poor households included adding enterprises to a farm, or diversifying into nonfarm or wage employment.

A wider range of livelihood options were open to men, allowing male-headed households to make use of their greater social and human capital to generate better returns in non-natural resource based activities. Women headed households, on the other hand, tended to be crowded into a narrower range of activities, but those with the asset base (including human capital and entrepreneurial skills) to enable them to succeed would invest more strongly than men in the productive assets to make it possible for them to generate improved returns. (Shepherd and Bird, 2003:601-603)

5.6 Discussion of findings

Findings from the various studies mentioned above confirm the point that households in Southern Africa are multiple livelihood seekers who pursue opportunities in and outside agriculture whenever and wherever these arise (Bryceson, 2002; Murray, 2002). A number of studies from Sub-Saharan Africa and Latin America have confirmed the increasing importance of non-farm income in contributing towards food security. For example, evidence from a sample of rural villages in Tanzania (Ellis & Mdoe, 2003; Chapman & Tripp, 2004) revealed that at least half of household income came from crops and livestock and the other half from non-farm wage employment, self-employment and remittances. Non-farm income was observed to be higher for upper income groups than for the lowest income groups. The poorest households were more

reliant on agriculture; a reliance which decreased as non-farm activities increased. Diversification patterns in among communities in Zimbabwe have features which include the following:

i. Access to assets, education, credit facilities and markets play a significant part in influencing the degree to which households diversify. In agreement with Warren (2002: 5), Barrett *et al., (*2001) and Hussein and Nelson (1998), availability of assets such as savings, land, labour, education, access to market or employment opportunities is a primary factor in determining a household's capability to diversify.

ii. Gender relationships at household level have meant that women have limited options for diversification than men. As noted by Ellis (2000) and Gladwin *et al.,* (2001), gender relationships may constrain or promote access to some household assets or the mobility of certain gender and age groups. This means that the degree of involvement in diversification activities and the unequal distribution of their benefits vary between genders.

iii. Among the main economic activities pursued by severely poor households were farming or a mix of natural resource-based enterprises, or casual labour, or beer brewing, construction with low entry barriers and returns to labour. In many cases casual labour in other farms is the most common option for poor households. Its relative availability can be used as a proxy for access to income and food (ZIMVAC, 2010). Though enterprise-based diversification looks attractive because of its alleged capacity to promote more sustainable rural livelihoods, yet due to the higher investment and higher risk entailed by self-employment or enterprise development, temporary wage labour is often the first choice for impoverished farmers in need for diversifying their livelihoods (Warren, 2002).

The ZIMVAC 2010 assessment provided a picture on the major sources of income as in Zimbabwe among rural communities which confirmed the importance of casual labour as an income source (see Table 5.0). It further

asserts that the rural non-farm economy has not been able to create any significant employment and incomes. There has not been much injection of non-farming income into rural areas that would have created demand for both industrial and agricultural products. A number of constraints make businesses non-viable, namely, price controls, transport, inadequate rural infrastructure, and lack of telecommunications facilities

Table 5.0 Major Household Income Sources

Source of Income	% of households
Food crop production/sales	40
Casual labour	40
Vegetable production/sales	35
Livestock production/sales	24
Remittance	15
Formal salary/wages	9
Cash crop production	9
Petty trade	9
Gifts	8
Skilled trade/artisan	8
Own Business	7
Gathering natural products for sale	7

Zimbabwe Vulnerability Assessment Committee 2010 Report

Conclusion

Diversification of livelihoods beyond the farm among rural households has been very limited in Zimbabwe. This is attributable to very little support towards rural enterprise development. As a result in agreement with the ZIMVAC 2010 results, when crop production fails the only alternative source of food and livelihood for households has been engaging in casual/paid unskilled labour at other farms or government public works programmes (Osbahr, *et al.*, 2010). Faced with continued threat to agriculture, farming households are increasingly resorting among other things to selling of assets, reliance on social networks (including money lenders), NGO support (e.g., food aid, cash for work), petty trading/hawking and temporary migration (including exchange, work, support)

as major adaptation strategies against climate induced problems such as drought.

As noted by Barrett *et al.,* (2001) and Ruben and Pender, (2004) quoted in Mutenje (2010:341), “the paradox faced by poor households is that while they would most need livelihood diversification, they are less able to engage in higher remunerated livelihood strategies due to entry barriers and difficulty of financing initial investments. Consequently, much of the livelihood diversification in rural areas is characterised as 'desperation-led' and limited to unskilled wage labour”

CHAPTER SIX

METHODOLOGY

6.0 Introduction

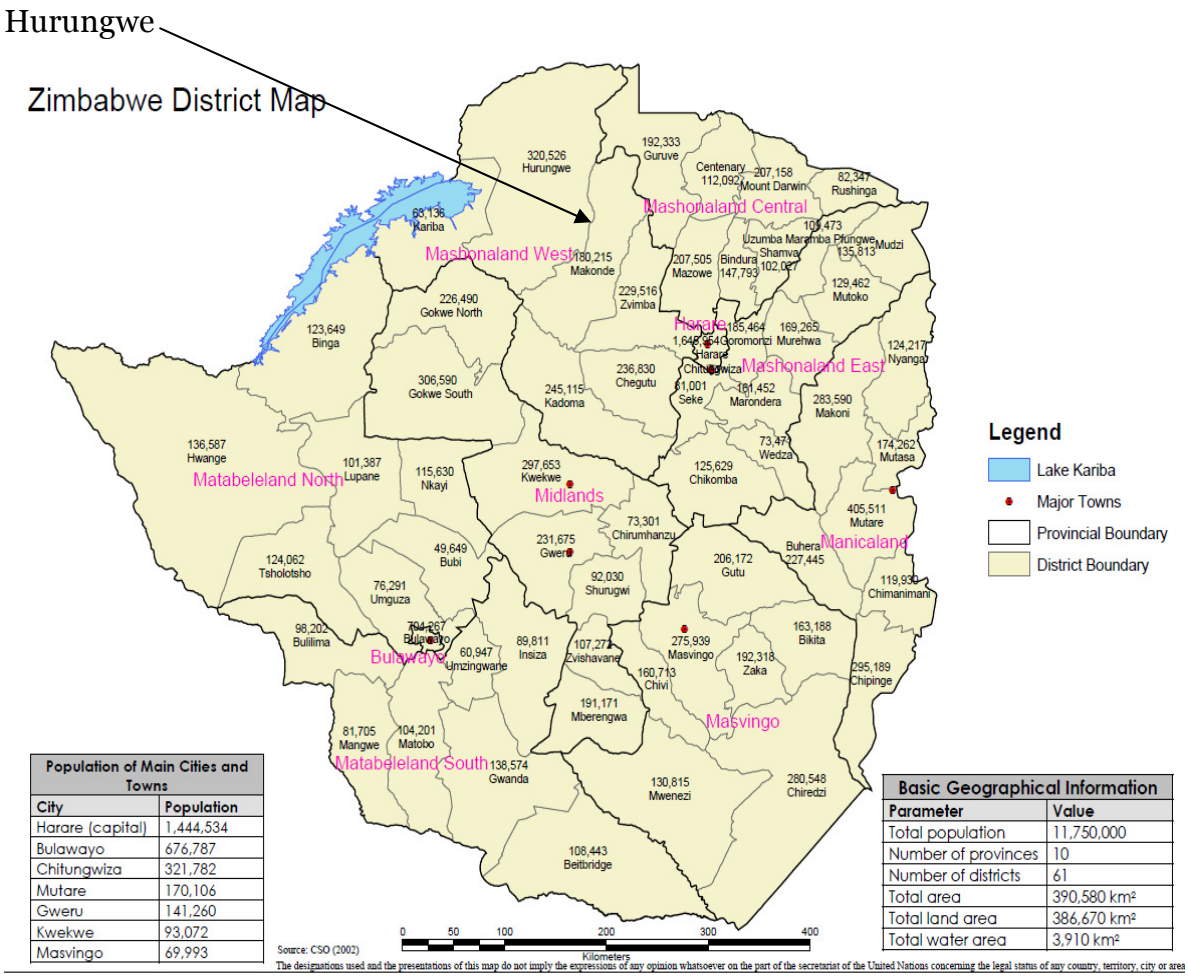
The study was conducted in Hurungwe District which is about 200km from the capital city (Harare). Hurungwe, like many districts in Zimbabwe has experienced erratic rainfall and adversely affected by socio-economic developments in the country. Consequently, rural communities in the district have experienced food insecurity evidenced by the scale of food aid programmes initiated by NGOs during the years 2006-2009. However, with economic stability returning to the country, livelihood activities beyond farming are growing in popularity. The chapter begins by providing an overview of the study area paying particular emphasis on livelihoods, food security and demographic characteristics in Hurungwe.

Attention is also focused on outlining a detailed description and rationale for the methodology used in the study. As will be demonstrated, the study was qualitative in nature employing tools methods such as focus group discussions, key informant interviews, secondary data research and observations. In the same section, justification of the methodology is provided, in addition to discussing strengths and weaknesses of the data gathering methods. The chapter concludes by highlighting constraints faced during the research processes and how the study endeavoured to ensure adherence to ethical considerations.

6.1 Hurungwe District Profile

Hurungwe District is located in the north western part of the country about 200km from Harare the capital. The district has a population of 361,370 inhabitants (187,160 Male and 179,210 Female) residing in 1025 villages categorized into 26 sub units called Wards. The 2002 Census revealed that the district had about 85,668 households whose average size range from 7-9 members per household. Hurungwe population is predominantly comprised of

the Kore-Kore ethnic group with some Karanga and Zezuru groups having migrated into the area before and after independence in 1980.



Population of Main Cities and Towns	
City	Population
Harare (capital)	1,444,534
Bulawayo	676,787
Chitungwiza	321,782
Mutare	170,106
Gweru	141,260
Kwekwe	93,072
Masvingo	69,993

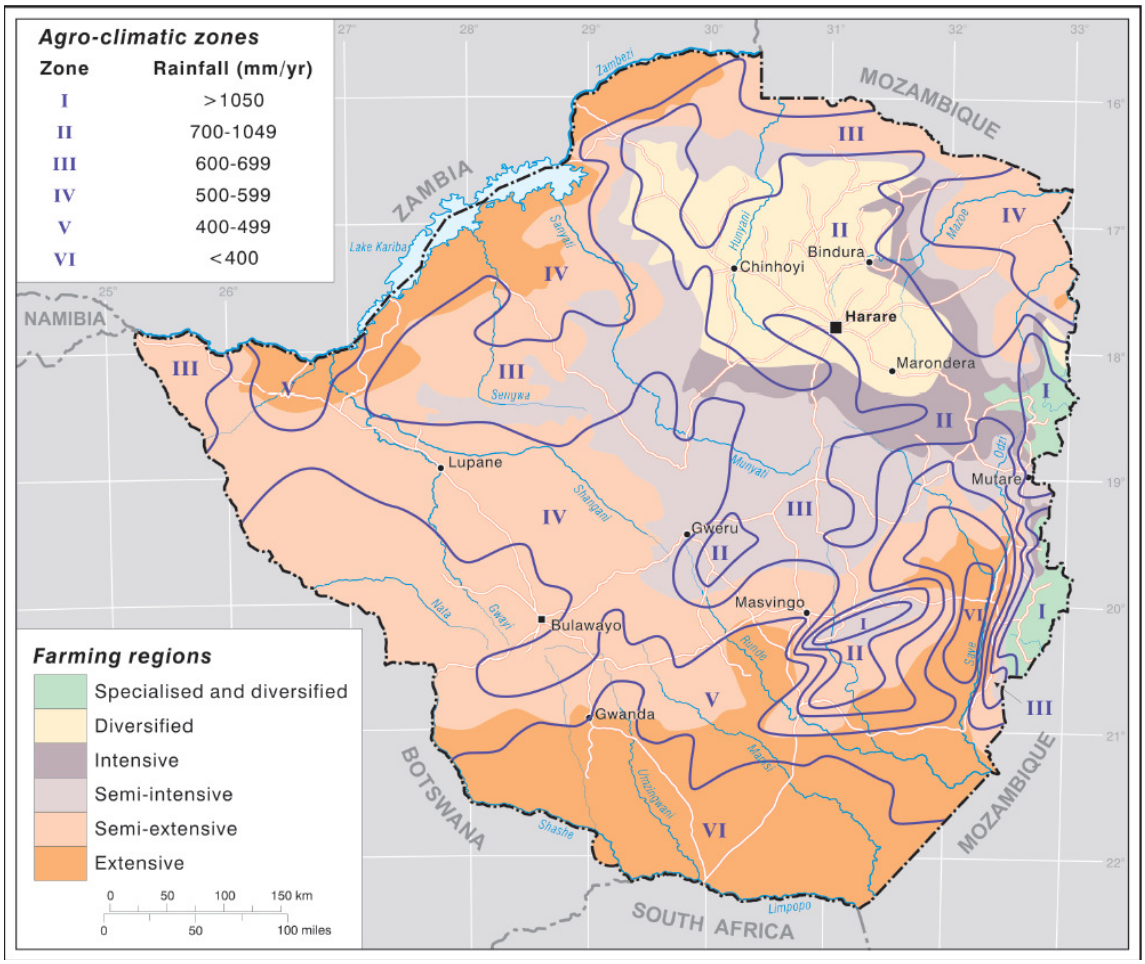
Basic Geographical Information	
Parameter	Value
Total population	11,750,000
Number of provinces	10
Number of districts	61
Total area	390,580 km²
Total land area	386,670 km²
Total water area	3,910 km²

Figure 6.0 Zimbabwe District Map-Source: UNOCHA 2002

Geography & Climate

Hurungwe district covers an area of 19,200 square kilometres which lies in Natural farming regions II, III and IV whose characteristics are summarized below:

Figure 6.1 : Zimbabwe Farming Regions



Chimhowu 2010

Table 6.0: Description of Farming Regions In Zimbabwe

Natural Region	Area (ha)	Percentage %	Main features	Agricultural potential
I	613,233	1.56	Rainfall in excess of 1050mm precipitation in all months of the year, relatively low temperatures.	Specialised and diversified farming. Forestry, fruit, intensive livestock, tea, coffee.
II	7,343,059	18.68	Rainfall between 700mm-1050mm per year mainly in summer.	Intensive farming. Crops and intensive livestock production.
III	6,854,958	17.43	Rainfall between 500-700, infrequent but heavy falls of rainfall, seasonal droughts, relatively high Temperatures.	Semi-intensive farming. Livestock, fodder and staple and cash crops Like maize, tobacco, cotton.
IV	13,010,036	33.03	Rainfall between 450-600mm per year, frequent Seasonal droughts, relatively high temperatures.	Semi-extensive farming. Livestock farming, drought tolerant crops.
V	10,288,036	26.20	Rainfall less than 500mm, erratic. Northern Loved may have higher rainfall but topography and poor Soils make it unsuitable for arable agriculture.	Extensive farming. Extensive cattle ranching, wildlife farming, Crops only possible with irrigation.
VI	1,220,254	3.1	Unsuitable for any type of agricultural land use.	
TOTAL	39,329,576	100		

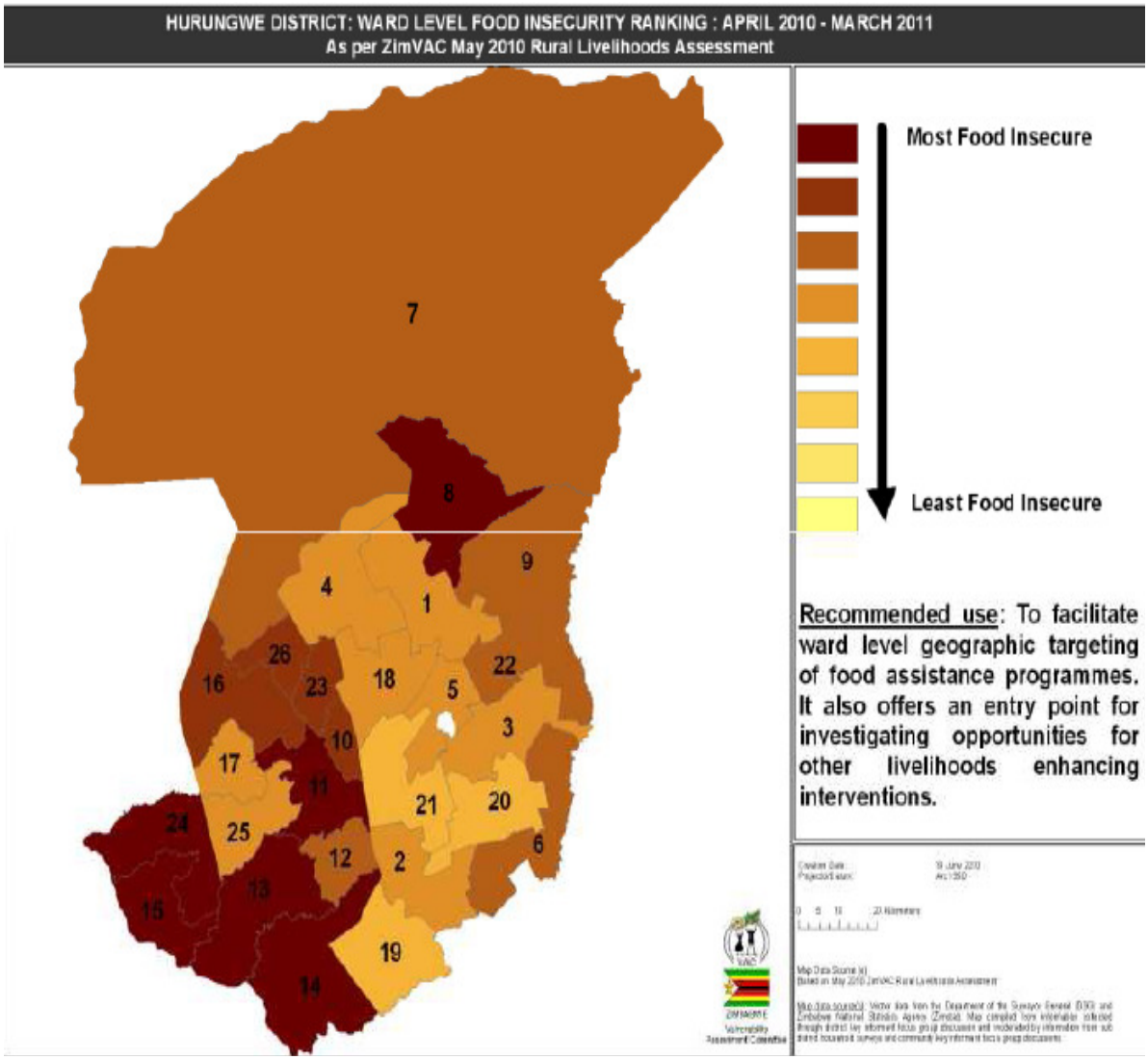
Farming Regions/Agro-ecological zones of Zimbabwe and the recommended farming systems in each zone (Vincent and Thomas, 1960).

Hurungwe District receives rainfall amounts that vary in some areas between 450-1050mm. Temperatures reach 35-400C during summer and drop to a minimum of 15-200C during the winter months (Chimhowu and Hulme, 2006). It is one of the few districts with some communal land areas that fall in Natural Region II, an area of naturally high agro-ecological potential. It therefore forms part of a contiguous belt suitable for grain production. Hurungwe used to be

termed ‘grain basket’ due to the comparatively high agro-ecological potential and the existence of ‘progressive farmers’ who were largely responsible for a surge in grain production in communal areas soon after independence (Chimhowu and Hulme, 2006).

The ZIMVAC February 2010 Zimbabwe Livelihood Zones Profile placed Hurungwe in an agricultural zone which is often affected by drought, floods, poor soils, wild animal destruction of crops, crop pests and animal diseases result in generally low harvests. Figure 6.2 below illustrates the latest food security situation in the district per ward.

Figure 6.2: Hurungwe District Food Insecurity Ranking



Hurungwe Source: ZIMVAC May 2010

6.2 Hurungwe Livelihoods Profile

In a study on livelihood zones profile in February 2010 by ZIMVAC, livelihoods in Hurungwe can be described as an economy of cash and climate dependent food cropping combined with animal husbandry. The main constraint is labour capacity and many households cultivate only a proportion of their landholding. The area has potential for successful cotton and tobacco production which are grown as cash crops. This cash cropping has fluctuated over the last few years due to market prices. The price of cotton and tobacco depends on the international markets and sometimes it is more economically viable to plant cotton or tobacco instead of cereals.

According to the ZIMVAC, 2010 report, for most households, own crop production is the most important source of food in addition to food purchases. In fact, food purchases had declined due to several factors such as food aid distributions over the past seven years, local on-farm jobs being paid in-kind, and the poor's low purchasing power. Middle-income and better off households usually consume milk and meat from their own herds. They also purchase food, funding purchases through crop, vegetable and livestock sales as well as employment. Many households in this zone also consume wild foods. However, the area lacks the physical infrastructure and functional market centres for lively trade. Hence, many people go in search of work in the high producing areas, earning grain in exchange for labour.

Wildlife and tourism activities are common in the drier northern parts of the district. Farmers also keep livestock for draught power and as an asset to sell when households' food stocks run low. The main animals that households own are cattle, goats and sheep. Proximity to Matusadonha National Park means that animal diseases are easily transmitted from the wild animals. Furthermore wild animals are also hunted on a small scale by local people and the game meat is kept for food or sold.

Sources of income for households in the area mainly cotton and tobacco production, gold panning, sale of small livestock and local crafts, as well as wild

foods found in the area. However, levels of household income are extremely low due to low pricing regimes. Poor households earn most of their annual income through casual work, supplemented by cash earned through the sale of their relatively small tobacco and cotton production or market gardening. Vegetables sales provide very limited income because of low development of irrigation facilities. Better off households, by contrast, earn most of their income from the sale of their cotton or tobacco crop, making them dependent on the volatile international market prices. Livestock sales – mainly the sale of chickens and goats rather than cattle, which are kept as savings – are a second important source of income for middle-income and better off households. With climate dependent livelihoods, the Hurungwe community is vulnerable to climatic variations such as drought. Other sources of income for households in this zone include gold panning and the sale of (illegally) hunted wild game (ZIMVAC 2010).

Table 6.1: Natural Hazards and Household Response Strategies in Hurungwe

Hazards	Response Strategy
Chronic hazards: • Wild animal predators often attack livestock in areas close to the national park. • Livestock disease and crop pests are also regular problems in this zone. Farmers face the risk of the unstable cash crop market every year, having to judge in advance whether it is worth concentrating on cotton or maize. • Wild animals, in particular elephants, attack crops in the Siabuwa area.	• Reduction in the number of meals and the quantity of food eaten per day • Excessive disposal of livestock to an extent where retaining former holding sizes is difficult. • Consumption of unusual wild fruits. • Increased poaching of wild animals and sale of game meat. • Increased consumption of wild foods • Increase in sale or exchange of livestock

Periodic hazards: • Roughly three to four years within a decade the area is affected by a drought. • Roughly once in ten years the area is affected by floods.	• Increase in labour exchange • Increased reliance on the collection of wild foods for sale and consumption • Assistance from better off households to poorer neighbours. This is only on a limited scale.

ZIMVAC February 2010

6.3 Introduction to Research Methodology

The study employed participatory research methodology which according to Holland (2007:4) is "research that tends to employ more contextual methods and elicit more qualitative and interpretive information, but brings with it an important additional philosophical commitment to respect local knowledge and facilitate local ownership and control of data generation and analysis".

The direct involvement of local people in the research process, entails allowing the community to engage from planning and data gathering stages. In this way, the awareness levels are raised and there is a commitment to utilize research results to bring about desirable social change (Scoones and Thompson, 1993). This is in line with the recommendation by Greenwood and Levin (2007:33) that research be conducted with people and not on people. Furthermore, Maxwell (1984:47) in agreement with Greenwood and Levin states that;

"The basic aim of inquiry, let it be remembered, is to promote human welfare, help people realize what is of value to them in life…But in order to realize what is of value to use in life, the primary problems we need to solve are problems of action -personal and social problems of action as encountered in life".

Developmental research should therefore focus on understanding the people for whose benefit the study is conducted. Understanding the social, cultural and physical circumstances of the people before commencement of the research is fundamental in limiting potential biases which may hinder the research from

achieving its objectives (Chambers, 1997). The choice of this methodology is further buttressed by the need for negotiated knowledge and contextualization of such knowledge (Pottier, 2003; Briggs, 2005:103). This implies that there is less reliance on the dominant quantitative research methodology that employs questionnaire surveys. Though action research is a relatively new approach in social research with great potential in development research, critics find it limited in scientific rigour (Pretty, 1994:38).

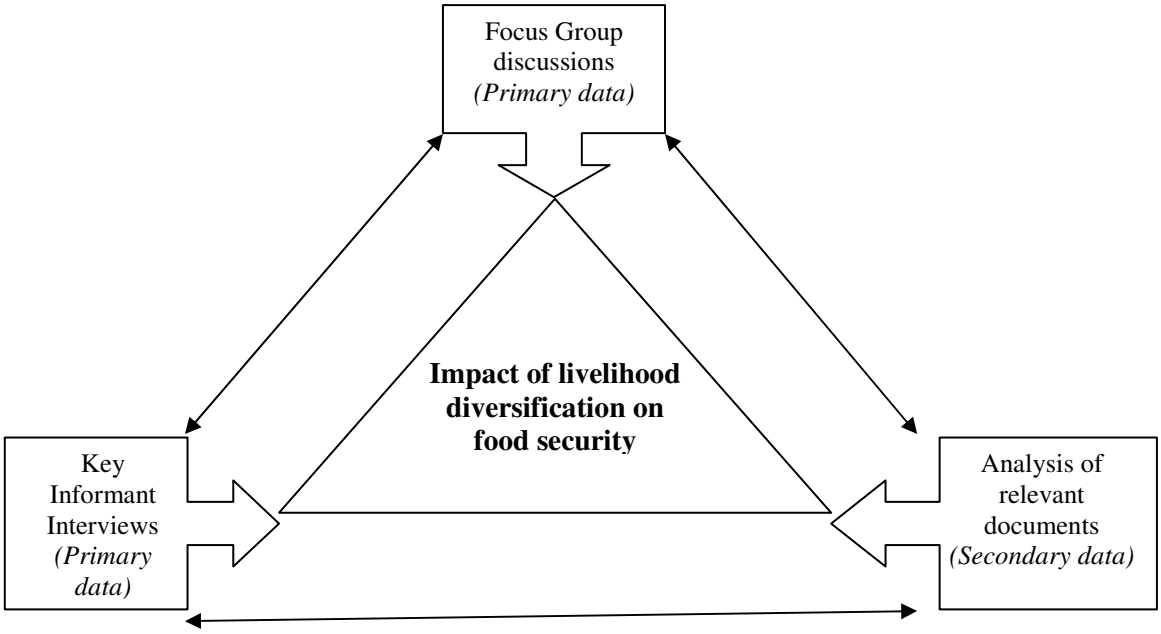
To address some of the concerns relating to action research and to improve the validity of the findings, triangulation was employed and feedback provided to participants for their validation. Cohen and Manion (1994) define triangulation as an "attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint. Miller and Brewer (2003:326) defined triangulation as “the combination of different methods, methodological perspectives or theoretical viewpoints in order to achieve a net gain where the strength of each contrasting approach more than cancels out the weaknesses of other approaches”.

In the study data gathered through the various methods (focus group discussions, interviews, observations) was correlated and triangulation enabled testing responses to questions asked under different circumstances i.e. how different would be a response to a question posed to a group from response to the same question posed to an individual in a structured interview. The set of guiding questions (provided in the annexes) were used by researcher to ensure a structured but flexible process.

Within the framework of action research methodology, specific methods to be used in a complementary manner will be analysis of relevant documents, focus group discussions (FGDs), Key Informant Interviews, (KII), secondary research (document review) and informal observation where appropriate (See Figure 6.3). The importance of triangulation is also underscored by the University of Illinois (2006) where it is suggested that in recognition of the imperfections in each data collection method, social triangulation enables cross-checking of gathered data which increases data validity as one set of data against data from

another collection method. It is also important not to heavily rely on one data source given the high likelihood of individual bias. Gathering through a mix of different approaches should ensure balanced results (University of Illinois, 2006).

Figure 6.3 Triangulation



In addition to allowing participants to fully express themselves, Mouton (2001:194) also notes that the virtue of qualitative research is that it studies people according to their own perspectives; gives room to the subjective sentiments and feelings of individuals; and is sensitive to contexts.

Given the dynamic and intricate issues relating to livelihood diversification and food security, qualitative research stands a better chance of providing rich and substantiated experiences and data. The research also enabled drawing out of knowledge on community perceptions and experiences on livelihood diversification. These enabled follow up on emerging issues whilst providing individuals' expressions on experiences and perceptions (Mouton, 2001:194). Marginalized groups such as women had an opportunity to participate in the research.

The obvious limitation of the study as it is based on a qualitative designs is that the findings are not generalizable and may lack scientific rigor and not be easy to analyze. Nevertheless, the aim of such a qualitative interpretive study is not to be generalized but to provide rich data on perceptions (Maree, 2007:294). Therefore qualitative research designs are appropriate in determining the depth of study phenomenon and as such they do not usually attach statistical significance to a phenomenon under study (Mare, 2007:294). In summary, the emphasis of the study was on depth rather than breadth.

6.4 Challenges relating to the research process

The foregoing observations notwithstanding, this research learnt several lessons and encountered a number of challenges, the most important ones being that:

i) During the gathering of primary data, participants kept indicating that they were "tired" of being asked questions about their needs and situation without any tangible help to address their problems. Unfulfilled promises have the potential to discourage participation of communities in future research. Therefore the researcher had to exercise tact and kept reassuring participants of the purpose and usefulness of the study.

ii) Furthermore, the above meant that there was also need for tact and wisdom to avoid raising expectations making any promises or commitments with regard to the delivery of anything.

iii) The researcher had to fund the research from own resources which limited the size of the research sample as the researcher had to cater for research assistants' subsistence allowances and transport costs.

iv) The researcher made use of World Vision community based development officers as research assistants. Due to other commitments, field work for the research had to be rescheduled to feasible dates when the research assistants were available. Secondly, the problem pointed in (i) might also have been compounded by the fact the participation of World Vision staff might have led the respondents to perceive the research as a World Vision activity.

6.5 Sampling Size and Population

According to Durheim (1999), a researcher rarely can collect data on all the subjects of interest in a particular study largely because of limitations of time and other resources. Samples provide a practical and efficient means to collect data. The sample serves as a model of the study population. The sampling frame constituted all the residents in two wards. However, for a researcher to extend study findings to the entire study population, the sample must be an accurate representation of the entire study population. This ability of the researcher to extend findings beyond the sampled individuals, time and place is referred to as "external validity". The implication for this study is that one can only generalize findings to the remaining households in the selected wards and not beyond.

However, as this was a non-probability qualitative design, the sampling techniques used was purposive sampling for the subjects/participants and convenience sampling for selection of the wards. According to Trochim (2006), a purposive sample is a non-representative subset of some larger population, and is constructed to serve a very specific need or purpose. A researcher may have a specific group in mind but given the expected difficulties in accessing everyone the group, the researcher will attempt to zero in on the target group, interviewing whoever is available. Purposive sampling (Leedy 1993:89) was used to select two ward centres out of twenty six (26) wards in the district whose livelihoods have traditionally been crop and livestock production but also engaged in some form of diversification. The two selected wards have the potential to generate meaningful findings as they are considered as falling in the prime agriculture zone in the district where both subsistence and cash cropping are practiced. Secondly, the wards have benefited from various interventions by government and NGOs focusing on livelihood diversification and agricultural support.

From the two ward centres, four villages were selected with participants selected through convenience sampling for FGDs. In convenience sampling, subjects are selected just because they are easiest to recruit for the study and the researcher faced limitations in selecting subjects that are representative of the entire population. Whilst it was ideal for the study to have tested the entire district, ,

due to resource and time limitations, the population is just too large that it is impossible to include every ward. This is the reason why in the selection of wards, the study utilized convenience sampling, as it is fast, inexpensive and easy.

6.6 Discussion of Data collection Methods

Three research assistants from the area were engaged in data collection. The set of research questions in Annex 1, were utilized to guide the interview process, ensure consistency but also encourage flexibility in breadth and depth during discussions. The tool contained questions that sought to determine community perceptions and experiences on food security, contribution and impact non-farm livelihoods to food security. This data collection strategy was not influenced by numerical and epistemological precision but by the need for detail and interpretation (Mouton, 2001:194). The study also employed triangulation data collection strategy in which four data collection methods (FGD, KIIs, informal observation and secondary research) where employed to ensure complementary strengths and improvement in data validity and reliability (Mare, 2007). Interview guides were utilized during FGDs and KIIs to ensure uniformity and consistency, whilst during the same period, secondary research and observation were employed to enrich findings. As with other qualitative methods, the decision to use FGDs and KII was influenced by the research question and objectives. FGDs and KIIs would assist in yielding a large amount of information over a relative short space of time from multiple perspectives and persons. However, observation and secondary research were used to compliment them.

6.6.1 Identification & Training of Research Assistants

The three (3) research assistants for the study were drawn from World Vision Development Facilitators. These are based in same community where the interviews and discussions took place, therefore understand the communities better. The Research assistants also played a pivotal role in mobilizing the relevant participants for the study, selecting venues and negotiating with community leaders prior to the interviews. Research assistants were selected on

the basis of their proximity to the two wards and experience in facilitating community discussions and dialogue.

The researcher also took time to train the research assistants before conducting the interviews in the field. Training centred on translation, interpretation of questions, how to effectively facilitate FGDs, note taking and other key issues to be observed during the discussions. After the training, the team reviewed all the guiding questions and translated them into local language.

6.6.2 Understanding Focus Group Discussions

Focus group discussions have been recognized to be a useful tool in research. Despite the existence of many definitions of a focus group in the literature, but features such as organised discussion (Kitzinger, 1994), collective activity (Powell, *et al.*, 1996), social events (Goss & Leinbach, 1996) and interaction (Kitzinger 1995) confirm the contribution that focus groups make to social research. A useful definition by Powell, *et al.,* (1996: 499) describes a focus group as "a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research."

FGDs are meant to generate qualitative information through an organized discussion with a selected group of individuals on a particular topic (Gibbs 1997:3). Thus, as noted by Webb and Kevern (2001:800) all definitions place emphasis on interaction among participants as a way of accessing data that would not emerge if other methods were used. Interaction gives the method a high level of validity because what participants say can be confirmed, reinforced or contradicted within the group discussion.

Some researchers suggest that FGDs can be comprised of up to fifteen people (Goss and Leinbach, 1996), however the recommended number of people per group is usually six to ten (MacIntosh, 1993). Focus group sessions usually last from one to two hours. The meetings can be held in a variety of places ideally there should be conducted at an accessible place where the participants hold their regular meetings. Neutral locations can be helpful for avoiding either

negative or positive associations with a particular site or building (Powell and Single, 1996).

Focus Group Discussions versus Other Methods

FGDs enable researchers to draw upon respondents' attitudes, feelings, beliefs, experiences and reactions in a way in which would not be feasible using other methods such as observation, one-to-one interviews or questionnaire surveys. Individual interviews draw out individual attitudes, beliefs and feelings whilst focus groups elicit a multiplicity of views and emotional processes within a group context. An individual interview is relatively easy to control than a focus group where participants may take the initiative. When compared to observation, FGDs enable the researcher to gain a larger amount of information within a short time frame whilst observational methods tend to depend on waiting for things to happen (Gibbs, 1997).

As much as focus groups are a form of group interviewing there are stark differences to note. Focus groups rely on interaction within a group based on topics that are supplied by the researcher (Morgan, 1997: 12), whilst group interviewing involves interviewing a number of people at the same time with emphasis being on questions and responses between the researcher and participants. Therefore, FGDs can be used either as a method in their own right or as a complement to other methods, especially for triangulation (Morgan, 1988) and validity checking.

Advantages of Focus Groups

i. Focus groups can be relatively flexible, low cost and provide quick results. The actual time and cost for planning, conducting, and analysing data may be relatively small when compared to alternatives such as survey projects and individual interviews.

ii. Interactions between the moderator and participants allow the moderator to probe issues in depth, address new issues as they arise, and to ask participants to elaborate on their responses. FGDs provide an opportunity to participate in decision making processes, to be valued as

experts and interact with researchers which may be empowering for many participants (Race, *et al.,* 1994, Goss and Leinbach, 1996). If successful, a focus group works may effectively explore solutions to a particular problem jointly as a unit (Kitzinger, 1995), rather than as individuals.

iii. Participants may be more comfortable talking in a group than in an individual interview. Interactions can generate more discussion and, therefore, more information. FGDs can become a forum for change both during the focus group meeting itself and afterwards (Gibbs, 1997, Race *et al.,* 1994). A study by Smith *et al.,* (1995) involving patients in a hospital who were invited to air their views about the quality of services and suggest ways of improving them. Consequently the changes that took place at the hospital were a direct result of patients' input.

iv. FGDs enable data to be collected in the respondents' words which is easily understood and will provide insights into how respondents think about the topic. As noted by Gibbs (1997), interaction between participants during FGDs provides a forum for them to highlight their view of the world, their values and beliefs about a situation. This enables them to jointly interrogate an issue, ask questions to each other, re-evaluate and reconsider their own understanding of their specific experience or issue (Kitzinger, 1995). Where multiple understandings and meanings exist, multiple explanations of their behaviour and attitudes will be more readily articulated.

Disadvantages of Focus Groups

i. Groups can be difficult to assemble a representative sample and may discourage certain people from participating, for example those who are not very articulate or confident, and those who have communication problems or special needs. Therefore, more planning is required for FGDs than other types of interviewing as getting people to group gatherings can be difficult and setting up appropriate venues with adequate facilities requires a lot of time (Gibbs 1997).

ii. Recruitment of appropriate participants can be time consuming, especially if the topic under consideration has no immediate benefits to participants. Differences in gender or wealth class, professional and education among participants may considerably impact on their contributions.

iii. The group setting can influence the responses of individuals, which is problematic when a dominant member affects the outcomes. This means the researcher has to ensure that participants converse with each other, ask questions and express reservations and opinions as well as keeping them focused on the topic. By its nature focus group research cannot be entirely predetermined since it is open ended (Gibbs, 1997).

iv. Some participants may find FGDs intimidating, especially those who are not able to clearly articulate themselves or are generally shy. Limited confidentiality may also discourage some participants from trusting others with sensitive or personal information. The quality and quantity of focus group data is therefore dependent on the ability of the moderator, making it essential for him/her to be trained and skilful.

v. Due to small numbers involved, they are limited in their ability to generalise findings to a whole population. Gibbs (1997) notes that despite this limitation there are numerous examples of research in which focus groups have been employed which include developing HIV education in Zimbabwe (Munodawafa *et al.*, 1995), understanding how media messages are processed (Kitzinger 1994), and distance interviewing of family doctors (White and Thomson, 1995).

During the study, six (6) FGDs (3 per ward) were conducted at randomly selected venues in Wards 11 and Wards 13 of Hurungwe District. Each discussion group had between 10-12 randomly selected participants who were men, women and youths (mixed) of ages 17-21 years. Three trained facilitators used about eight guiding questions to moderate the discussions with participants selected through random sampling taking into account gender, age, length of stay in the district and socio-economic category among other factors. Judgment or quota sampling was employed according to the researcher's

judgment to ensure participants with the sufficient demographic and socio-economic representation (i.e. individuals involved in agricultural activities, micro-enterprise, casual labour and small business). In total, 72 participants comprising women, youths and men were separately engaged in discussions to ensure balanced representation and input. The sampling in this study was done with the research assistants who knew the area and the people very well.

To ensure balanced input, the approach used during focus group discussions entailed interviewing men, women and youths of various ages involved in different livelihood activities. The focus group discussions were intended to explore ideas and opinions from community members involved in non- farm livelihoods. These discussions provided further insight into community members' experiences and perceptions on livelihood diversification in line with the objectives of the study. Interacting with community members in their natural setting promoted openness and cross fertilization of ideas among participants. Discussions were conducted at accessible community centres in the two wards as explained in Table 6.2 below.

Table 6.2: Community Focus Group Discussions Details

Group	Details
Group 1: Men/male community members	These were two groups (one from each ward) comprising a total of 25 participants. In consultation with the village heads and community leaders, the men who were selected were either engaged in farm and off farm livelihoods such as brick moulding, casual labourers, beer vending and vegetable gardening. These were selected from three nearby villages taking into account length of stay in the district and their willingness to engage in positive discussions on livelihoods and food security. Their participation was very good as they provided meaningful dialogue on the subject matter for about one and half hours.

Group 2: Female /Women community members	A total of twenty eight (28) women from the two wards participated in FGDs. The group comprised women engaged in enterprises such as rearing of poultry, weaving of mats and baskets, peanut butter grinding, casual labour, vending of vegetables and sewing. Discussions at each centre lasted almost two hours. Community development facilitators from World Vision in consultation with the community leadership nominated these participants who were drawn from about 4 villages. Discussions were very lively and insightful.
Group 3: In school and out of school youths	Thirty boys and girls aged between 17-21 participated in FGD at the two centres. These were selected in consultation with school authorities and village leadership. Discussions took about an hour for both groups. These were youths who were either still in school but would also engage in livelihood activities after school and during school holidays. Out of school youths also participated in the discussions and were mainly involved in casual labour, bee-keeping and gardening activities. They all freely shared they experiences and observations at community level with regards to livelihood diversification and food security. This group was chosen mainly due to need to also ensure balanced view and verify information provided men and women groups.

Among the number of weaknesses in FGDs includes the fact that they lack confidentiality, they discourage certain people from participating who are not confident enough and that identifying an individual message from a group is

complicated. Whilst ethical considerations for focus groups are the same as for most other methods of social research (Homan, 1991), a particular ethical issue to consider in the case of focus groups is the handling of sensitive material and confidentiality. There is need for researchers to clarify that each participant's contributions will be shared with the others in the group as well encouraging confidentiality and the researchers' responsibility to anonymise data from the group (Gibbs, 1997). In view of this, efforts were made during the training and orientation of research assistants to ensure that confidentiality of participants is assured, maximum participation is encouraged and all views are accorded the same amount of attention and respect. All views were documented and recorded during the discussions. It was used also for triangulation with information obtained from Key Informant Interviews.

6.6.3 Understanding Key informant interviews (KII)

KII entail getting information from an individual who is considered knowledgeable about a topic of interest. Semi-structured interviews are conducted in a face to face setting with a key informant enabling the researcher to seek new insights and ask questions in different perspectives. During KII, since one is looking for useful ideas and insights, not just for statistics, respondents are chosen based on their knowledge and expertise. In situations where written records or published documents are limited, KII facilitate information on different perspectives especially when key informants are accessible and have in depth knowledge about a topic (Jimenez, 1985; McKillip, 1987).

According to the UCLA Center for Health Policy Research;

"Key informant interviews are qualitative in-depth interviews with people who know what is going on in the community. The purpose of key informant interviews is to collect information from a wide range of people—including community leaders, professionals, or residents—who have first-hand knowledge about the community. These community experts, with their particular knowledge and understanding, can provide insight on the nature of problems and give recommendations for solutions."

The USAID (1996: 1) notes that KII are useful in the following situations:

- When qualitative, descriptive information is sufficient for decision-making.
- When there is a need to understand motivation, behaviour, and perspectives of our customers and partners.
- When a main purpose is to generate recommendations. Key informants can help formulate recommendations that can improve a program's performance.
- When quantitative data collected through other methods need to be interpreted, key informant interviews can provide the how and why of what happened.
- When preliminary information is needed to design a comprehensive quantitative study. Key informant interviews can help frame the issues before the survey is undertaken.

Therefore KII have a very specific purpose which involves identifying different members of your community who are especially knowledgeable about a topic and asking them questions about their experiences working or living within a community. KII provide a useful platform to gather detailed data in a relatively easy way, raise awareness, interest, and enthusiasm around an issue as well as providing an opportunity to build or strengthen relationships with important community informants and stakeholders

Advantages of key informant interviews include that they provide information directly from knowledgeable people, provide flexibility to explore new ideas and issues as well as that they are inexpensive and simple to conduct (Durheim 1999). Some disadvantages include that they are not appropriate if quantitative data are needed, they are susceptible to bias if informants are not carefully selected and maybe difficult to prove validity of findings (USAID, 1996:2).

However Carter and Beaulieu (1992) note that KIIs may be difficult to generalize results to the larger population unless interviewing many key informants. In addition to being challenging to reach and schedule interviews with busy and/or hard-to-reach respondents, selecting the "right" key informants may be difficult so they represent diverse backgrounds and viewpoints.

In the study, structured interviews where held with key informants using an interview guide. Twelve key informants were selected using purposive sampling because of the need to engage individuals and or institutions that are likely to provide meaningful input to the study. These comprised eight community members engaged in at least one nonfarm livelihood strategy, two NGO officials and two government officials. Care was also taken to ensure diversity among key informants. This was meant to enrich findings and allow multiple perspectives that will minimize bias.

Table 6.3: Key Informant Interviews Details

Group	Details
Community members engaged in non-farm livelihoods	In consultation with community leadership, eight community members involved in non-farm livelihood activities were purposely selected to take part in Key Informant Interviews. These were: • 1 beekeeper • 2 x beer vendors • 1 x small livestock farmer • 2 x poultry farmer • 2 domestic/petty goods vendor Interviews were conducted after the FGD which enabled verifying of FGD findings. Participants were interview for about 30 minutes each at centres in the two wards. Research assistants and the researcher conducted the KII at the two

	centres.
Department of Agriculture	Interviews were conducted with the District Agriculture Extension Officer and one Community Extension officer to obtain understanding on food security and livelihoods in the district. The interviews lasted for one hour each facilitated by the researcher.
NGOs	In-depth interviews were conducted with two NGO officials who have been working in the area for more than 10 years. These were with Lead Trust and World Vision district heads. Discussions centred on past and existing interventions by the two organisations, their assessment of food security and the role played by livelihoods diversification in the district.

6.6.4 Secondary Data Research

Secondary data is the data that have been already collected by and readily available from other sources. Such data is cheaper and more quickly obtainable than the primary data and also may be available when primary data cannot be obtained at all. Secondary data enjoys the advantage of being available effortlessly, rapidly and inexpensively. Primary data takes a lot of time and the unit cost of such data is relatively high (Management Study Guide, 2010).

The study also harnessed various information sources and documentation on the subject matter and the study area from the UNISA library, Hurungwe District AIDS Action Committee, World Vision District office and ZIMVAC assessments and survey reports which generally guide developmental and humanitarian efforts in country. Information was also gathered by reviewing government reports, news items and research findings from previous studies in the area of food security Secondary data gathered from previous research on the subject enabled the researcher to understand the research area better, thus assisting the researcher in shaping the research approach, as well as the gaps

that need to be filled in by the research. More secondary data was obtained from the UNISA library, as well as the Internet, especially from the websites of various development institutions.

Secondary data has numerous advantages which include the fact it is economical and saves efforts and expenses. It also helps to improve the understanding of the problem providing a basis for comparison for the data that is collected by the researcher. With the help of secondary data, one is able to make out what are the gaps and deficiencies and what additional information needs to be collected.

However, disadvantages of secondary data include the fact that accuracy of secondary data is not known as it may be outdated. When using secondary data one has to ensure that it is relevant through ascertaining that units of measurement are the same, concepts used must be same and currency of data should not be outdated. In order to ensure accuracy, the researcher should also consider the methodology used and dependability of the source must be seen (Management Study Guide, 2010).

6.6.5 Personal Observations

The study employed both direct and participant observation techniques (Strauss and Corbin, 1990; Leedy and Ormrod, 2005), so as to deepen understanding of issues and also observe the interaction of people in their natural setting. Informal observation and interaction with community members during the research period enabled me to establish a relationship of trust with research participants which facilitated greater access to “inside” knowledge, thereby enhancing the credibility of the findings (Stringer and Genat, 2004). The research team was made up of persons who reside in the community which positively enabled them freely interact with participants informal and formally. Observations made were compared and utilized during FGDs and KII to enrich research findings. The field observation was guided by an observation matrix as shown in Table 6.4.

Table 6.4: Observation Matrix

What to observe	Where	Method of observation
Off farm livelihood strategies employed by community members	Anywhere in the community, especially in areas close to meeting venues	Direct observation
Level of participation in nonfarm livelihoods by youths	8 villages in the two wards	Participant observation
Popularity of or level of interest in tobacco farming	Anywhere in the community, especially in areas close to meeting venues	Direct observation

6.7 Ethical Considerations

The study took into account the fundamental principles of research ethics, guided by the three principles of bio-ethics identified in Good Clinical Practices of The Belmont Report Ethical Principles and Guidelines for the Protection of Human Subjects of Research (OHSR, 2008),which include:

Respect for Persons/Informed Consent: Informed consent exists to ensure that all research involving human subjects allows for voluntary participation by subjects who understand what participation entails. Informed consent means that people approached and asked to participate in a research study must: a) know what they are getting involved with before they commit; b) not be coerced or manipulated in any way to participate; and, c) must consent to participate in the research/project.

The Belmont Report (1979) outlines the three requirements for informed consent. The first requirement is research participants should be fully informed of the research procedure, their purposes, risks and anticipated benefits, alternative procedures (where therapy is involved), and an opportunity to ask

questions and to withdraw at any time from the research. The second requirement for informed consent is comprehension which requires researchers to adapt information to be understandable to every participant. This requires taking into account differences in abilities, intelligence levels, maturity, and language needs. Finally, the third requirement for informed consent is voluntariness where informed consent can be neither coerced nor improperly pressured from any participant.

Respect for Persons (Privacy and confidentiality): Privacy and confidentiality are very important components for research involving human subjects. People have a right to protect themselves, and information gathered during research participation could harm a person by violating their right to keep information about themselves private.

Risk benefit and beneficence: Beneficence is a principle used frequently in research ethics which means, "doing good." For example, biomedical research may strive to do good by studying diseases and health data to uncover information that may be used to help others – through the discovery of therapies that improve the lives of people with spinal cord injuries or new ways to prevent jaundice in infants. The crux of this issue lies in the fact that uncovering information that may one day help people must be gathered from people who are living and suffering today. While research findings may one day help do well, they may also cause harm to today's research participants. Researchers must never subject research participants to more risk than necessary, be prepared to cease research if it is causing harm, and never put participants at a level of risk disproportionate to the anticipated benefits.

Justice: Particular interest has been paid lately to preventing the overburdening of some populations in order to apply research findings to other groups. Populations under consideration with particular potential for exploitation may include the following population groups:

- Minority groups
- Women

- Mentally impaired persons
- Prisoners
- Disadvantaged persons in third world countries
- Employees

Specific attention was accorded to the following research ethics:

Informed consent and voluntary participation

Prior to recording of FGD proceedings, permission from the subjects was sought verbally and confirmed through a signature on the attendance list during the discussions. The research team verbally explained and clarified the contents therein, including the potential risks and benefits of participation to participants giving them room decide whether participate or not in the research from an informed point of view. Participants were also given the liberty to withdraw from the research at any stage of the discussions with no coercion employed.

Protection from harm

In accordance with the Helsinki Declaration of 1972, the study ensured that no harm is caused to the research subjects by ensuring that all the research assistants were trained and data collection instruments approved by the researcher prior to conducting data collection. This is so, mainly because the only harm that the researcher envisaged was psychological and or emotional harm. Physical harm was mitigated by ensuring that the venue of data collection was a usual community meeting point-safe, culturally acceptable and comfortable for the researcher and the subjects.

Confidentiality

The researcher included a confidentiality clause in the informed consent verbal narration. All raw research data was kept as private and confidential as possible.

6.8 Data Capturing and Analysis

Qualitative data was analyzed using thematic data analysis taking into account common words, phrases, themes and patterns in order to enhance understanding (content analysis). The critical reflection on field notes and interview transcripts enabled increased understanding on how participants make meaning of a specific phenomenon by analysing their perceptions, attitudes, understanding, values and experiences (Mare, 2007:294). Consequently, discussions and interviews were combined in order to make interpretations of the phenomena being investigated. Thematic content analysis was undertaken to identify key themes which according to Van Rensburg & Smith (2004:134) "... the researcher needs to appreciate that computers are not capable of comprehending or discerning the meaning of words or constructs". To enhance the validity of the information gathered, a triangulation was done by cross-checking the information with different people.

CHAPTER SEVEN

KEY RESEARCH FINDINGS AND DISCUSSION

7.0 Introduction

The chapter provides a detailed presentation and discussion on the research findings. The findings were derived from Focus Group Discussions with community members, Key Informant Interviews with selected community members, NGOs and government representatives in the District. In addition limitations are also highlighted in the chapter. The discussion on the findings will also refer to comparative studies on livelihoods and food security shared in the previous chapters. The findings are presented below under each research objective.

7.1 Key Findings & Discussions on First Objective

Objective: To identify and analyze predominant livelihood diversification strategies in the Hurungwe community

Hurungwe District has been predominantly a farming region. Located in Natural regions II, III and IV, majority households in the area are involved in crop and animal husbandry as a major source of livelihood. The area has also been affected by climatic variation, droughts and erratic rainfall patterns that have been prevalent in the country. Notwithstanding this, the most common crops grown in the area are shown in Table 7.0 below:

Table 7.0: Agricultural Activities in Hurungwe District

Number of Wards	26 Wards broken down as follows: 15 Communal Wards 2 Old Resettlement schemes/wards 1 small scale farming ward 8(recent) A1/A2 Resettlement Model wards
Crops	Maize (staple food & cash) Tobacco (cash) Cotton (cash) Sunflower (cash) Groundnuts (food) Sugar beans (food & cash) Sorghum (food) Paprika ***Winter Horticulture at two irrigation schemes*
Main Challenges facing farming households	• Inputs (prices and availability) • Limited draught power • Erratic rainfall • Limited extension services (only 82 workers surviving over 40,000 farming households) • Unattractive agricultural prices • Delays in payment system • Very limited support to livestock/animal husbandry

District Agriculture Office Hurungwe 2011

With drought being a major challenge for the Hurungwe community, discussions with the community revealed that with the attractive prices offered for tobacco, many farming households have over the past few years shifted from maize to tobacco farming. This change has been influenced by delays in payment for maize/cereals delivered to GMB and the low producer prices being

offered. Consequently, households have increasingly resorted to tobacco farming whose proceeds and prices are attractive enough to provide them cash to purchase food. The decrease in cereal farming activities however, has not yielded the intended results due to the poor quality of tobacco produced. The District Agricultural Office reported that due limited skills in tobacco farming, unavailability of tobacco curing materials (i.e. firewood) and the limited bargaining power by farmers, most households that migrated from cereals to tobacco incurred significant losses.

A study by Chimhowu and Hulme (2006) on livelihood patterns in Rengwe and Nyamakate areas of northern Hurungwe, confirmed whilst farm related earnings provided most household income in Nyamakate, diversification within agriculture was common. This was more evident where non-poor farmers diversified into high return and high-risk crops like tobacco.

7.1.1 NGO Agricultural Support

In recognition of the importance and role of agriculture in the livelihoods of households in Hurungwe, NGOs such as World Vision, LEAD Trust, Goal and Save the Children have been implementing food security related interventions aimed at improving productivity. Specifically, the support rendered has been towards conservation farming training, distribution of seed packs and fertilizer, seed multiplication, post-harvest management and distribution of small livestock. Due to resource limitations these loosely coordinated interventions have targeted a small segment of the community. Feedback from LEAD Trust and World Vision revealed that the communities in the district have always identified agriculture as a priority thereby influencing NGOs to channel bulk of the support to this sector.

Discussion with community members revealed that drought has been major challenge to Hurungwe communities especially those whose livelihoods are agro-based. Furthermore, market access in the district is among the poorest in the country, due to its remoteness from regional market hubs such as Gokwe, Karoi, and Chinhoyi among others, a situation exacerbated by the poor state of roads. The only functional trading is between households who have a particular

item and those who require it. The majority of the population access basic commodities through local businesses, or in urban centres such as Karoi. Items are supplied on irregular basis. Maize grain is purchased and sold by the Grain Marketing Board and private dealers while local cotton and tobacco are sold to private companies in Harare. It is important to note that the political and socio-economic problems that affected the country over the past 5-10 years reversed gains scored in the agricultural sector. This included the radical land reform, foreign currency constraints, hyperinflation and shortages in essential farming supplies which further disrupted agricultural production. With limited extension services, persistent droughts and low government support efforts aimed increasing production among farming households continues to encounter many challenges.

7.1.2 Livelihood Diversification Patterns in Hurungwe

In response to the poor performance in agriculture due to droughts and various other factors, FGDs and KIIs with community members revealed the following as the predominant livelihoods strategies:

Table 7.1: Predominant Livelihood Strategies in Hurungwe

Strategy	Description
Casual labour	Mainly women and young people migrate to work in commercial farms in return for food items, clothing or cash. This happens mainly during the farming season between November and May
Brick Moulding	After the rainy season, repairs of homesteads and domestic structures commence. Mostly men engage in brick moulding for sale to community members or NGOs involved in community infrastructure projects.
Beer Brewing	Following the harvest season, beer brewing and sales gather momentum. This is on limited scale due
Vegetable farming/vending	Depending on proximity to and availability of

	water during winter periods (May to August), vegetable farming or horticulture is undertaken by households with irrigable land.
Poultry rearing	This entails the rearing of poultry, small livestock (pigs, goats) for sale locally.
Craft making (basket and mat weaving)	Women undertake the weaving of mats and basket for sale either in Karoi or locally.
Gold panning	Common in areas along river banks or shallow streams, gold panning has grown to be popular especially during the economic crisis in the country.
Fishing/poaching	An illegal activity which takes place during after the harvest season in rivers and dams in the district. The nearby game reserves provide ground for poaching of wildlife for sale either in Zambia or consumed locally.
Other microenterprises	These include beekeeping, sewing/garment tailoring, candle making, oil pressing etc. which are undertaken by skilled persons who may have received training and support from NGOs in the past.

The above findings are fairly consistent with studies by Shepherd and Bird (2003) on livelihoods and poverty in semi-arid regions in Zimbabwe where households were found to be more dependent on retained agricultural output than markets. In the same study, poor households were engaged in farming or a mix of natural resource-based enterprises, or in activities with low social status such as casual labour, a high degree of drudgery i.e. beer brewing, construction or with low entry barriers and returns to labour.

Livelihood patterns in Hurungwe can be broadly categorized in line with classifications by Warren (2002:7) namely the wage path and the self-employment path. In this case, wage labour in Hurungwe would refer to the employment opportunities in agricultural or non-agricultural enterprises owned

by non-household employers either available locally or in distant areas from the places of residence. Self-employment enterprises refer to activities undertaken by mobilizing labour and household capital assets such as processing of agricultural commodities, petty-trading, handicrafts, cottage manufacturing etc. Factors influencing the choice of these activities are discussed in detail later in this chapter.

7.1.3 Gender & Livelihoods in Hurungwe

Discussions on the gender breakdown of the roles played by women and men in livelihood activities revealed that in many cases women tend to engage in more livelihood activities than men despite very little external support. Whilst decision making in the household is centred on men, support towards women's participation in nonfarm livelihoods was noted to be very limited. During the discussions with women, concern was raised on the low level of support and participation of men in non-farm livelihoods. Men, as reported seem to prioritize and focus on tobacco cropping which has potential to significantly boost household income. Therefore, with the increasingly popularity of tobacco farming, men have played a limited role in engaging in other livelihood activities aimed at improving food security.

Table 7.2: Gender breakdown of livelihood activities

Men	Women
Brick moulding	Casual labour
Fishing/poaching	Basket and mat weaving
Beer brewing	Poultry/small livestock rearing
Vegetable gardening	Vegetable gardening
	Tailoring
	Peanut butter
	Beer brewing
	Oil pressing
	Candle making
	Vending of agricultural produce

Discussions with the youth groups revealed that their participation in non-farm livelihood activities has been limited to casual-labour or supporting parents in already established enterprises. Chief among the cited reasons were lack of the necessary skills and inputs to engage in profitable livelihood activities especially after the farming season (between April and October). The study also noted that in many households, children are also considered as labour for both agricultural and non-agricultural pursuits.

Ersado (2003) in a study on livelihood patterns in urban and rural Zimbabwe revealed that household head sex and the number of adult household members has a major influence on the number of income sources in rural areas. This confirms studies by Ellis (2000), Gladwin, *et al.,* (2001) and Hussein and Nelson (1998) that diversification is also shaped by gender relationships whereby men are able to avail themselves of diversification opportunities that are not open to women due to cultural constraints. This means that the degree of involvement in diversification activities and the unequal distribution of benefits vary between genders (Ellis 2000:295; Gladwin., *et al* 2001) which is a product cultural and socio economic set up in any society.

7.1.4 NGO and Government Support in non- farm livelihoods

Though there is recognition among Hurungwe community members and development actors of the importance of livelihood diversification in contributing to food security, however due to resource limitations and organizational priorities, much of the support has been biased towards agricultural production. Of importance to note are World Vision's microenterprise support programmes which distributed candle making machines, oil pressing machines, cash loans and sewing machines. This intervention was considered very relevant as it was designed through community consultations, and also relevant to the local context e.g. oil pressing, because the area is a sunflower growing area. However, the hyperinflation environment that prevailed made some of the interventions irrelevant e.g. the context was not conducive for cash loans whose value was quickly eroded before the beneficiary households could yield any benefit from it.

The use of locally available resources in income generating activities like sunflower in oil production was effective unlike projects like candle making which needed wax, a resource that was not readily available locally due to the national economic crisis. After the introduction of use of foreign currencies, the fortunes of such projects turned upside down as cooking oil and candles became available in the shops as relatively cheaper prices than the ones being produced in the communities whose prices could not compete because the price of wax to make candles.

The non-availability of inputs for such projects therefore affected the production of candles which in turn affected the effectiveness of the project. All the groups and households that received oil pressing machines reported that the machines were poorly designed as they were not durable and had numerous breakdowns that affected their effectiveness. Warren (2002:10-11) notes that "small enterprise development has become an increasingly appealing alternative for all the stakeholders involved in rural development as it promotes an economically self-reliant sector of rural micro-entrepreneurs as a possible solution to the never-solved agrarian question." However, small enterprise development can become a viable if some basic conditions are made available to rural households which include:

- Access to and availability of start-up capital, such as land, labour and skills credit), physical infrastructure and social networks
- Supportive structures and processes which include enabling policies, business development services, credit, transport and communication infrastructures etc.
- Protection against shocks and negative trends through social welfare services and insurance schemes
- Access to marketing information and a developed market for supply of inputs and other consumption commodities and an outlet to enterprise outputs

- Resilience against market failure with flexibility to change the enterprise according to changes in demand and other market related factors

Warren (2002) further argues that lack of these conditions is also an immediate cause of extreme rural poverty. Significant investments in enhancing access to natural resources, credit, education and training, services, and infrastructure and fair market outlets are needed to make rural enterprise development a viable and effective component of rural livelihood security and poverty alleviation policies.

7.1.5 Factors influencing the selection of Livelihood activities

When participants were asked to share factors that influence their choice of livelihood activities, the following where suggested:

i. *Available skills:* Some of the potential livelihood activities require specialized skills which are not available in many households. With very little or no training opportunities, household are forced to resort to "those which they know better". In many cases skills are passed within a household from adults to young household members, a situation which confines to a narrow range of livelihood activities such as wage labour in nearby farms which may not be lucrative. Availability of skills was identified to play a pivotal role in determining the extent to which households diversify. Incentives to diversify can either be buttressed or weakened by skills available.

The importance of skills and educational attainment in diversification is also confirmed in various studies i.e. Davies (2004: 7) identifies education as critical since better-paid jobs require formal schooling and that there is a correlation between education with rural non-farm business success. Owusu, *et al.,* (2011) study on non-farm work and food security in Ghana, suggested that schooling was an important determinant of participation in non-farm work. There is a positive correlation between education and access to credit, making it one of the most important determinants of non-

farm earnings. Therefore, educational attainment can serve as an entry barrier to better paying nonfarm employment or self-employment in rural Africa (Barrett, *et al*., 2001).

ii. *Availability of ready markets:* Interviewed community members engaged in non-farm diversification identified difficulties in obtaining lucrative local markets as a major challenge. The ability to quickly convert products or activities to cash enables households to acquire other goods or services that require cash payments. Faced with high transportation costs to urban centres, rural households accord priority to products that have a ready local market such as vegetables, beer or poultry.

After the tobacco harvest season there is large influx hawkers and traders from urban centres who bring in cheaper goods into communities in Hurungwe. Consequently, rural households engaged in similar activities find it impossible to compete with these goods and services. In addition, with increased incomes from tobacco sales, some community members are reported to travel to nearby urban areas i.e. Karoi to procure goods and services.

Other researchers like Barrett, *et al., (*2001) suggest that diversification may be used as a risk management or survival strategy in the absence of markets through compelling self-provision of some goods and services by households. This means diversification of labour activities and income in some instances is fuelled by the absence of markets. However this has not been the case in Hurungwe as it was revealed that the absence of markets to procure or sell goods and services actually discouraged diversification.

It should be noted that, where access to markets is costly and failing, households diversify production patterns partly to satisfy own demand for diversity in consumption. In the study area, this was common in cases where community members engaged in fishing, poultry rearing, oil pressing and peanut butter processing.

iii. *Initial capital requirement/asset portfolio:* Whilst prompted by survival and poverty factors, diversification in Hurungwe has also been influenced by asset portfolios/resource endowments. Households have had to select activities based on resource endowments and available asset portfolios that enable them to diversify easily. Warren (2002:5) suggests that in addition to asset composition, the availability of savings, land, labour, education, access to market or employment opportunities is a primary factor in determining a household's capability to diversify. Webb and Block (2001) based on a study on diversification in Ethiopia concluded that level of assets owned i.e. livestock ownership is positively and significantly associated with income diversification, even controlling for level of income. Livelihood related goals such as income security and wellbeing are therefore defined by how households choose among assets and how they employ them.

iv. *Availability of credit facilities for initial start-up requirements:* Due to poverty, community members in Hurungwe like other rural areas have to contend with very little cash reserves. Efforts to source cash for capital requirements are constrained by the limited availability of credit facilities. Given that households have limited cash options, they prioritize activities that do not pose a further demand on already meagre cash resources. The situation is compounded by unavailability of credit facilities or micro loans designed for rural communities. In agreement with Warren (2002: 5), Barrett *et al., (*2001) and Hussein and Nelson (1998), identify the availability of assets such as savings is among the primary factors determining a household's capability to diversify.

Ersado's (2003) study on livelihood diversification in rural and urban Zimbabwe noted that access to credit appears to improve conditions for diversification in rural areas, but not so in urban areas. Therefore credit constraints prevent households from engaging in lucrative diversification options. In the absence of formal credit, the main source of funds is often from the savings and or assets of the (extended) household. Initiatives from NGOs in the area and

government to promote micro-finance facilities have been very limited in coverage is still incomplete. As suggested by Ellis (2000:296) low rural credit availability in rural areas such is partly attributable to high costs of setting up financial services and obtaining adequate information on potential borrowers, high risk of default on loans, and the absence of collateral to put up against loans.

The absence of lending facilities can compel households to diversify and engage in activities that generate cash funds to be utilized in purchasing agricultural inputs or farm equipment (Binswanger, 1983; Reardon, 1997 quoted in Ellis 2000:296). This was also mentioned by community members interviewed during key informant interviews where they indicated that proceeds from diversification activities are further invested in agriculture.

v. *Land size:* Access to arable land in Hurungwe is considered limited which prompts poor households with very little or no arable land to pursue non-farm activities especially casual labour in nearby farms, gold panning and poaching which have no capital outlay. The socio-economic problems that affected the country saw a reduction in employment opportunities in urban areas and a drastic reduction in rural public works programmes which provide temporal employment to youths and young adults. Consequently, diversification was undertaken as a survival strategy in view of unavailable employment and income generating alternatives both on and off farm.

vi. *Unattractive Maize Producer Prices:* In addition to the unavailability of credit, limited access to productive assets, low education and skills levels, and poor market access, unattractive producer prices in cereals such as maize have driven many household to migrate to tobacco farming which promises higher cash income. KIIs and FGDs revealed that limited skills and unavailability of tobacco curing facilities and materials (firewood) further constrains households in producing high quality tobacco crop. The migration towards tobacco farming has been influenced by limited diversification options. Maize production continues to lose popularity

due to the use of seeds with terminator genes which has destroyed household and communal seed banks. Therefore in Hurungwe, much of the diversification is biased towards cash cropping with non-farm livelihoods pursued only when there is significant crop failure or poor yields.

Tobacco is considered input and labour intensive which requires households that have sufficient resources and manpower. With all household resources being employed towards tobacco farming (seeding, nursery and seedling production, farm cultivation, harvesting, curing, packing etc.), there is little room for diversification into other non-farm activities. Diversification in the study area is seasonal and temporal during the drier parts of the year as household prepare for the intensive tobacco season. Therefore the migration from cereal crops to tobacco crops may be considered another limiting factor towards full-scale diversification in Hurungwe.

With many households shifting from cereals to labour intensive tobacco, large households with many members are better placed to produce tobacco. They are also forced to consider alternative income sources during the drier parts of the year to provide for the large family size. Household size not only motivates diversification but also influences the type of activities engaged in. During discussions with community members it was noted that incomes from tobacco production are often used to diversify outside agriculture especially during the dry season. The success and sustainability of smallholder tobacco farming hinges on availability of extension services, training, labour and seed inputs.

Two factors worth noting and warranting further investigation in the future will be the impact of global movements against tobacco and environmental and social impacts of tobacco farming among smallholder rural communities. Whilst farmers enjoy relative good prices from tobacco harvests, the impact of such a labour and natural resource intensive cropping activity requires further study. As the anti-tobacco movement gathers momentum globally, key questions to consider are

how will these impact smallholder farmers whose livelihoods depend on tobacco? How can tobacco farming communities are mobilized to consider alternative livelihoods and environmental issues?

The findings from the study are similar to other studies on determinants of diversification among rural households. For example Barrett, *et al., (*2001:326) suggests that diversification is mainly influenced by differences in resource endowments such as land, labour, capital including access to markets and institutions. Though households may have similar endowments and opportunities they will not always select the same activities. A number of studies have confirmed that the ability of a household to diversify is determined by skills, location, assets, capital, markets and social connections (Hussein and Nelson 1998:10; Mutenje, 2010; Warren, 2002). Specifically in Zimbabwe the main determinants of livelihood strategies were noted to be differences in asset endowments, education, land and livestock - and the impact of economic shocks Mutenje (2010).

It can be generalized that in the study area, household income diversification can either be seen as a matter of survival-driven by the household's poverty status or choice motivated by a desire to improve household living standards (Ellis 1998:7). The behaviour of households in Hurungwe means diversification can either be seen from a survival perspective or evidence of improving household income (Ellis 1998). The fact that most of the non-farm livelihood activities are undertaken after the farming season demonstrates the importance attached to farming in the area. A major threat on agricultural production has been climatic risks such as droughts which have also affected the Hurungwe community. This has meant that households in an attempt to mitigate such risks have had to select non-farm livelihood activities especially outside the farming season (May to October). Whilst much of the diversification takes place after the farming season, the above factors confirm that rural farming households consider a combination of factors when selecting diversification opportunities. However availability of skills and capital seem to play a larger role in influence the type of non-farm activities which households select.

7.2 Key Findings & Discussions on Second Objective

Objective: To assess the contribution of livelihood diversification to household food security.

Firstly, before proceeding to investigate closely the impact of diversification on food security in response to drought, it is important to note that in Hurungwe most of the non-farm livelihood activities take place or are scaled up during the drier parts of the year i.e. May to October. This is the time when food requirements for households increase especially if output from the previous agriculture season was low. During such periods, livelihood activities become a coping mechanism to ensure survival. Secondly, an understanding of the socio-economic developments in Zimbabwe in the past few years will be useful in providing a balanced assessment of the contribution to household food security.

KII with various community members engaged in livelihood activities (i.e. bee keeping, cottage industries, beer vending, vegetable gardening and vending) revealed that despite the absence of any significant external support from NGOs, government, faith based groups non-farm livelihoods have played an important role in contributing to household income. Households that were able to diversify enjoyed higher incomes especially during periods outside the farming season. They were able to purchase food as well provide for basic needs at household level far much better than households who did not diversify. Diversification activities which brought higher returns include cottage industries, beer vending and vending. Payment for casual wage labour or off farm activities in other farms during the agriculture season was mainly in kind, where labourers we paid 5-10 kilograms of cereals which addressed short term food requirements for their families. As most of the diversification took place outside the agricultural season, there was very limited investment on the family farm. In light of this, it can be concluded that diversification did not yield significant impact on food security due to a number of compounding issues worth noting.

Firstly, the rural economy especially in Hurungwe is not based solely on agriculture but rather on a diverse array of activities and enterprises. Whilst

farming remains important, rural households are looking for diverse opportunities to increase their incomes. Respondents alluded to the fact that the extent to which households are able to feed themselves often depends on non-farm income as well as their own agricultural production. Non-farm income is used by many households to purchase grain which ensures food availability during critical periods. Whatever diversification strategies that are pursued, it was revealed that households are careful not to disrupt household food supply. They would rather prefer a mix of activities including both agriculture and micro-enterprises as noted by Orr and Orr, (2002). In the study area it was noted that diversification activities become popular for a few months outside the agriculture seasons which limits the amount of effort and investment in harnessing the potential of non-farm livelihoods. This seasonal attention to non-farm livelihoods was prevalent in the district consequently implying a marginal contribution to the overall food security.

Secondly, the bias towards crop production further meant that community members are entrenched in crop production as the only means of ensuring greater food availability and security. The situation was further compounded erratic weather patterns which continued to affect food availability, evidenced by the scale of food aid activities taking place in the district. For poorer households, casual wage labour on other farms and community work programmes continue to be popular as they require no specialized skills or input costs. This is in agreement with Reardon *et al.,* (2006) who suggest that "contrary to conventional wisdom, wage income is often more important than rural nonfarm self-employment earnings. Despite widespread self-employment, particularly among family-based, one and two-person enterprises, nonfarm wage employment appears at least as large a contributor to rural nonfarm income."

Though several household studies indicate that rural nonfarm income exceeds agricultural wage earnings (Reardon, 1997; Reardon *et al.*, 1998), in Hurungwe agriculture wage labour remains popular. Although an important source of additional income, the wage rates are low and work on the home farm may be neglected at times of more severe food insecurity. In those cases where the poor migrate to find work and supplement their income, they leave their own farms

untended adversely affecting short term household food security. This type of diversification can include work on others' farms or non-farm activities which often results in a decline in the management of the home farm if the necessary labour is no longer available when needed the most. This difference between diversification leading to sustainable coping strategies and those resulting in decreasing food security due to neglect of the home farm deserve recognition among agricultural development practitioners (Chapman and Tripp, 2004).

Though it is generally believed that income surpluses generated off-farm can provide farmers with income for on-farm innovation, interviews with key informants revealed that it is not clear to what extent income generated by non-farm activities is reinvested in agricultural production. Households are only able to reinvest in agriculture when off-farm work is only short term and the home farm has not been neglected. Where households successfully participate in off-farm work, priority is placed in ensuring food availability at household level. This means income from diversification is more often used for food purchases first.

Diversification among wealthier households with more land and/or education is different from the poorer households who are limited to low-productivity farming and low-pay farm labour due to limited education and land holding. In Hurungwe, an increase in diversification amongst low income group is seen more as a survival strategy rather than progress out of poverty. This has also been observed to be the case in rural Africa where although increased diversification corresponds with greater income, those poor in land and capital are less able to invest in nonfarm activities than higher income groups (Barrett et al, 2001). In light of the aforementioned, the impact of diversification of food security has several compounding factors. Whilst diversification usually means increased income for a household, but that depends on the extent to which it has disrupted household farming and whether the income derived is sufficient for food purchases and farm investments. It would be important for agricultural extension workers to also consider strengthening linkages between off-farm income and investment in agriculture.

7.3 Key Findings & Discussions on Third Objective

Objective: To identify and study factors which may strengthen or limit the efficacy of livelihood diversification on household food security. Livelihood diversification among rural households in Hurungwe was noted to be weak. Discussions with community members and key informants revealed the following as factors that either strengthen or limit the efficacy of livelihood diversification on food security as response to drought.

i. Limited Skills

FGDs and key informants involved in nonfarm livelihoods highlighted that the greatest constraint to diversification is lack of skills. These include both technical skills in areas such as carpentry, masonry, tailoring, oil pressing etc. as well as the basic managerial skills to ensure sustainability and growth of enterprises. Community members engaged in diversification either had the skills passed down in the family or at one time benefited in some training outside Hurungwe. This means young persons wishing to engage in nonfarm livelihoods continue to be constrained by lack of training opportunities locally.

ii. Credit/micro finance facilities

Years of chronic food insecurity led many households to adopt negative coping mechanisms such as disposal of assets whose proceeds would be used to purchase food. This has left them with little or no alternative ways mobilize resources for diversification. The unavailability of micro credit facilities or start up loans for rural communities renders them incapable of pursuing non-farm enterprises. This explains why casual wage labour is a predominant livelihood in Hurungwe.

iii. Transport system

Like many rural communities, transport in Hurungwe continues to be a major challenge. Community members depend on urban centres such as Karoi and

Chinhoyi towns for sourcing raw materials or inputs for their enterprises. In some cases, where possible, these centres are also a potential market for their products. However the unreliable and high cost of transport in rural areas poses immense challenges for accessing lucrative markets and sourcing raw materials. This further discourages many from engaging or effective pursing nonfarm livelihoods.

iv. Supportive framework for rural livelihoods

From the review of existing policies it appears there is no clear supportive policy framework for rural livelihoods. For the past few years deliberate focus has been on crop production as an immediate guarantee of food availability at household level. NGOs and other development actors have not comprehensively supported rural livelihoods. This has left rural communities with limited options leading them to continually rely on crop production. In many instances it was noted that nonfarm livelihoods in Hurungwe gather momentum during the dry season as a bridging survival tactic from one farming season to the other.

v. Labour Intensive Farming Methods

Tobacco farming has increasingly grown to be popular in Hurungwe as many smallholder farming households are reported to have shifted from cereals to tobacco production. Whilst tobacco production promises lucrative returns in addition to requiring skills and infrastructure it is labour intensive at all stages i.e. planting, weeding, harvesting, curing and packing. With many households lacking adequate draught power, all human-labour resources are shifted from other enterprises to the cultivation of tobacco, a situation which further frustrates any attempts to diversify.

The research also revealed that households continue to place priority on tobacco farming as most success stories in the community are found among tobacco producers. This further creates a perception that tobacco farming is the best way to guarantee increased household income and food security. Tobacco farming households asserted that they hope with the proceeds from tobacco they can

procure cereals and other food items. As a result diversification can only occur outside the tobacco planting season and any proceeds from it are ploughed into tobacco farming. However, one critical factor which needs further reflection relates to the over exploitation of the environment (i.e. woodlands and forests) to support curing of tobacco leaves. Community members expressed limited knowledge on environmental issues relating to tobacco farming.

vi. HIV and AIDS pandemic

The impact of the AIDS pandemic on rural livelihoods and food security, particularly in Sub-Saharan Africa has been noted with various studies. For example. Loevinsohn and Gillespie, (2003:3) affirm that livelihood issues and diversification have to be seen through an "HIV/AIDS lens" which means shocks on food security and livelihoods in Africa cannot be properly understood without considering the effects of HIV/AIDS. HIV has been recognized as a unique, slow-moving and devastating shock (Gillespie *et al.*, 2001:2) that strips households of livelihood assets. It heightens vulnerability to food insecurity leading to increased susceptibility to HIV infection (Gillespie *et al.,* 2001:7). Mdladla *et al.*, (2003:vi) terms it a "critical livelihoods and rights issue, seriously compromising access to food at the household level". Households affected by HIV are more sensitive to livelihood shocks which in turn affects their food security. Baylies, 2002, cited by SADC, 2003) argues that HIV can (rightly) be treated as a shock to household food security that can leave households significantly impoverished.

Respondents revealed that Hurungwe has not been spared by the HIV and AIDS pandemic that has among other things seen the proliferation of single headed, child headed households consequently depleting existing capacities and assets in the household. When confronted with HIV and AIDS, the most common response by households was revealed to be that of redirecting family incomes to providing care for the infected member. This meant sacrificing essential household expenditures in education and farm investments. Therefore, HIV-affected households face increasing risk of food insecurity as sick family members cannot work, income decreases, health-care expenditures increase,

with less time for caring for children or pursing alternative livelihoods. Households affected by HIV in Hurungwe were identified to be significantly impoverished and unable to effectively engage in livelihoods that ensure increased food security. This left government and NGOs with no option but to design and implement interventions aimed to cushioning such.

A study worth noting by SADC (2003) study on the impact of HIV/AIDS on households in Malawi, Zambia and Zimbabwe revealed that morbidity and mortality related to HIV & AIDS led to a rise in food insecurity and adoption of negative coping mechanisms especially among poorer households. As observed in Hurungwe, HIV-affected households face increasing risk of food insecurity as sick family members cannot work, income decreases, health-care expenditures increase, with less time for caring for children or pursing alternative livelihoods.

7.4 Community and key stakeholder recommendations

At the end of each FGD and KII, input was sought on how NGOs, government and communities themselves can work together to support and strengthen rural nonfarm livelihoods. Discussions that were conducted revealed the following:

A. Government

a. Provision of training opportunities for rural communities in non-farm livelihoods. Participants raised concern on the absence of vocational training opportunities for young people graduating from school in the area. Deliberate efforts are needed to set up centres in rural areas which offer training in areas such as tailoring, carpentry, business management, welding etc. These would absorb young persons who have graduated from school and equip them with skills to contribute to household income as well.

b. Create incentives for micro-finance institutions to provide credit facilities to rural population. Instead of relying on NGOs who resources and scope is limited, government should deliberately put in

place incentives to micro finance institutions to set up and provides services to rural communities.

c. Upgrading of main feeder roads or rural road networks to enable access to urban markets. This is also meant to facilitate access to raw materials and supplies for off farm livelihoods. A good transport network to facilitate communication and linkages with urban areas which can complement rural off farm livelihoods.

B. NGOs

a. Increased support for open pollinated varieties and resuscitation of communal seed banks. NGOs involved in agricultural promotion activities should play their part in protecting communal farmers from falling prey to profit seeking seed companies that promote seeds with the terminator gene. Sustainable community seed storage systems should be promoted to compliment other measures rather than distributing "free" seed to communities every year.

b. Increase support towards micro enterprises and vocational skills development in rural areas. Instead of providing "free hand outs" of various items, NGOs should gradually shift towards a livelihoods based approach that focuses on skills and micro enterprises at community level.

c. Provide training in small business management at community level to complement existing and future income generating activities. Livelihood packages from NGOs should place this at the centre of their efforts.

d. Support attempts to diversify through cash and asset loans to enable start up. This entails deliberately providing support to rural households through micro loans and other types of loans that support growth in the rural non-farm income sector.

C. Rural Communities

a. Encourage formation of local support groups or networks for households involved in nonfarm livelihoods. Community members should be supported and encouraged to initiate local networks or groups involved in similar livelihood activities. This is meant to increase mutual learning and sharing of experience useful in the growth and development of micro-enterprises.

b. Make use of peer to peer learning for skills transfer. Instead of relying on external experts, where possible, local skills transfer and sharing should be promoted. This is considered critical based on the unavailability of vocation training centres in the community.

c. Invest proceeds from tobacco or other cash crops into further diversification. Instead of viewing nonfarm livelihoods as divorced from agricultural activities, community members should use income from agricultural activities such as tobacco farming to invest into diversification. The absence of short term credit or micro loans means many households will have to continue having to self-finance their livelihood activities.

The above recommendations confirm findings from a study in Kwazulu Natal, South Africa which revealed that crop production alone was not sufficient to improve the food security situation among households. Wild foods and vegetables, and non-farm activities also played a significant role in ensuring household food security (Mjonono *et al.,* 2009: 317). Rural off- farm opportunities will provide opportunities for the landless rural poor, curbing rural to urban migration and possibly induce some urban to rural migration. Alternatives include cottage industries that process food crops by value addition and/or enhancing shelf life through preservation techniques; production of small scale processing machinery; provision of credit; contract processing facilities; and market facilitation. (Mwaniki, 2005:9)

Conclusion

From the findings in the study, it may be concluded that diversification patterns among households in response to drought in Hurungwe have been largely shaped by micro and macro level factors. At household and community level, factors such as skills, education, access to capital assets and credit and markets. One peculiar feature worth noting is that despite greater emphasis on cereal production by government and NGOs in the area, the unattractive producer prices have seen a shift towards tobacco production. Limited skills and capital have been a major constraint in tobacco farming; however some successful households have gone to use incomes from tobacco sales to diversify mainly outside the cropping season. Socio-economic developments that prevailed in the country over the past few years also reduced the incentive to diversify outside agriculture. As stability returns in the economy, diversification patterns are become more visible within and without agriculture.

CHAPTER EIGHT

8.0 KEY RECOMMENDATIONS AND CONCLUSION

8.1 Summary of key findings

The study sought to determine the role played by rural livelihood diversification in ensuring household food security in Hurungwe, which will be useful in providing recommendations on how diversification can be effectively promoted to improve food security. A summary of key findings on each of the objectives is provided in this section together with recommendations and possible areas for further research.

Objective One: *To identify and analyze predominant livelihood diversification strategies in the Hurungwe community*

Under this objective, an investigation was made on livelihood diversification patterns among households in Hurungwe. Whilst it was recognized that farming (subsistence and cash crops) still occupies a significant role in the livelihoods of communities in Hurungwe, the study sought to identify other complimentary non-farm livelihood strategies. The following where identified as predominant livelihood strategies in Hurungwe:

- Casual/wage labour in commercial farms in return for food items, clothing or cash.
- Brick Moulding
- Beer Brewing
- Vegetable farming/vending
- Poultry and small livestock rearing
- Craft making (basket and mat weaving)
- Gold panning, common in areas along river banks or shallow streams.
- Fishing/poaching in nearby dams and rivers as well as the margins of game parks along the Zambezi valley
- Other microenterprises/cottage industries such as beekeeping, sewing/garment tailoring, candle making and oil pressing

As noted in the previous chapter, tobacco farming is gaining increasing popularity among households given the attractive producer prices when compared with cereals and other crops which used to be common. Secondly, maize production is also being affected by the inability of farmers to maintain seed banks due to terminator genes in the seeds produced or distributed by NGOs. This has meant that farmers continue to purchase seeds and other inputs every year, a position which is unsustainable. However, households migrating from tobacco farming were reported to lacking essential skills and critical inputs to enable production of quality produce. Without any external efforts, it is highly unlikely that tobacco farming will significantly improve incomes and reduce poverty. Further research might be needed on how tobacco farming is impacting on the environment and the extent to which it will be sustainable given global movements against tobacco. Identified determinants of diversification in Hurungwe were available skills, availability of ready markets, initial capital requirement/asset portfolio, availability of credit facilities for initial start-up requirements, land size, unattractive maize producer prices. Diversification into non-farm activities is therefore common during the months of April to October.

Therefore in line with various studies diversification among rural households is mainly influenced by differences in resource endowments such as land, labour, capital including access to markets and institutions (Barrett *et al.,* 2001:326). As noted by Hussein and Nelson (1998), households may have similar endowments and opportunities but this does not mean they always select the same portfolio of activities. Availability of skills, location, capital and social networks also play a significant role in diversification.

Objective Two: *To assess the contribution of livelihood diversification on household food security.*

Zimbabwe underwent a socio-economic and political crisis characterized by hyperinflation, shortages of basic commodities, high unemployment, erratic rainfall which significantly affected livelihoods and food security. In addition the radical land reform programme that disrupted agricultural production reducing the country to net importer of cereals and food commodities.

Incentives to engage in non-farm livelihoods diminished due to restricted market access, reduced purchasing power and marketing opportunities. Consequently, priority was placed on ensuring food availability primarily through agricultural production which meant very limited attention towards diversification of livelihoods. Among the factors that constrained the impact of diversification in Hurungwe were declining purchasing power due to the in management and marketing, skewed NGO & Government support.

An assessment of the impact of diversification on food security revealed that whilst diversification has the potential to contribute towards food security, various compounding factors need to be taken into account. Firstly, households prefer a mix of activities including both agriculture and non-farm activities. In Hurungwe, diversification activities gather momentum outside agricultural seasons (May to September), which limits the amount of effort and investment households place on non-farm livelihoods. Diversification is such instance is undertaken only when it does not disrupt farming activities. Its contribution to food security is affected by the partial attention it receives from households. Secondly, casual wage labour emerged to be a common diversification practice among poorer households. Though in many cases contribution towards short term food availability, it also meant neglect of the family farm. The low wages derived also made it difficult for further investments on the farm. As a result, the impact of diversification in such cases cannot be categorically considered as beneficial to food security. Lastly, diversification among low income groups is seen more as a survival strategy rather than progress out of poverty. There is very limited investment in nonfarm activities among poor groups due to lack of capital, education and land. For communities like Hurungwe where farming still plays an integral part in local livelihoods, diversification though possessing immense potential, its impact has to be evaluated in light of the various compounding factors.

Objective Three: *To identify and study factors which may strengthen or limit the efficacy of livelihood diversification on household food security.*

Factors that have a bearing on the efficacy of off farm livelihood diversification strategies were identified to include limited skills, access to credit/micro finance

services, transport system, HIV and AIDS pandemic, supportive framework for rural livelihoods, labour intensive farming methods which consume bulk of manpower available in a household. These interrelated factors were noted to be large influenced by socio-economic and political developments in the country.

Agriculture still plays an important role in the livelihoods of the Hurungwe community. It is after the farming season that off-farm activities are scaled up. With the advent of tobacco cash cropping, brisk business is recorded following the harvest and marketing of tobacco. However, as long as rural communities struggle with access to lucrative markets and credit and, lack the necessary skills the potential contribution of diversification to household food security and income is hampered.

Objective Three: *To recommend appropriate interventions and approaches for rural development practitioners on the effective strengthening of livelihood diversification as an adaptation strategy against unpredictable weather patterns.*

This objective forms the recommendations from the study which are explained in detail below under the specific headings. From the onset, it should be noted that the proposed recommendations are focused on triggering a multi stakeholder response towards improving the institutional environment, reducing risk, increasing mobility, minimising barriers to entry to facilitate the poor to improve their assets, and enhance their livelihoods.

i. *Investing in Human Capital*

A number of studies have established the significance of education, both formal academic education and workplace skills, for improving livelihood prospects which link poverty to low levels of education and lack of skills. In addition to formal education, access to vocational education and extracurricular activities will increase self-employment options in light of scarcity of formal jobs. Government and other stakeholders should promote post-secondary technical training and innovative on-the-job training schemes which when complimented with other measures will strengthen off farm livelihoods.

ii. Provision of Credit

Poorly functioning financial systems in rural areas have been identified as a major impediment to growth. Much of the emphasis has been on small-scale group lending schemes which enable individuals and households to widen their income base. Innovative micro-credit packages have been promoted in various localities which in most cases depend heavily for their sustainability on the continued involvement of NGOs. This means there is need for self-sustaining rural financial institutions whose savings and loan schemes are organised according to conventional banking criteria. Given the peculiar nature of rural banking, government has an important role to play in ensuring appropriate regulatory and supportive to encourage the formation of such institutions. On a local level, the development of credit co-operatives and micro-credit organizations should be complemented with training on how to develop business plans and approach financial institutions.

iii. Access to markets

The efficacy of rural livelihoods whether on or off farm depends to large extent of access to markets. Viable markets should be established for rural producers in addition to ensuring the access to information on market opportunities should be made more readily available. Market intelligence will improve the bargaining power of rural farmers and entrepreneurs but more importantly provide ideas for product customization.

iv. Infrastructure

Rural infrastructural development has an immense potential to facilitate growth of rural livelihoods and poverty reduction as it may enable integration with national economies, transfer of information, efficient markets, improving the working mobility of people, resources and outputs. Provisioning village water-supply systems, good road access and electrification maybe undertaken through labour-intensive techniques. These will consequently, increase local purchasing power, providing vital building and maintenance skills and employment opportunities to local people, in addition to providing them with better physical amenities. However from the onset, maintenance this infrastructure needs to planned for through either decentralisation which places such in the hands of

rural communities themselves or privatisation which may enhance efficiency and help to reach more remote rural areas.

v. *Enabling policies*

Government needs to develop a robust and comprehensive rural development policy that spells out strategies aimed at reducing poverty and supporting livelihoods in rural areas. This should be informed by national, regional and local level assessments of geographical comparative advantages which can be promoted by development actors. Private sector, government, nongovernment organizations (NGOs) and local people should be involved in developing and investigating local potential which will inform infrastructure development. Other supportive policies and incentives may also include promoting the provision of micro finance and financial services to rural communities.

vi. Gender

The role of women in food security and livelihoods at household level can never be downplayed. With the advent of the HIV and AIDS pandemic in many communities, deliberate efforts are needed to empower and equip women to access more livelihood and income opportunities as men. Communal tenure arrangements need to be transformed and start accepting as land owners. Gender stereotyping of non-agricultural specializations should be avoided. Community groups should be equipped to provide a platform for mobilizing skills training, marketing, and providing infrastructure for villagers' economic activities with a special attention to women.

8.2 Areas of further research

In light of the findings of the study, there is need for further research in the following areas:

i) What is the contribution of tobacco cash cropping to food security and household income? Informed by the increasing importance attached to tobacco cash cropping by rural households who are abandoning cereal production mainly due to low producer prices, it would be interesting to investigate the implications on food availability of the shift to tobacco

farming. What challenges are being faced by smallholder tobacco farmers and what opportunities exist for them? How sustainable will tobacco farming in view of global anti-tobacco movements and over exploitation of forests and woodlands for firewood? The study could also focus on the role, challenges and opportunities as well as implications of tobacco farming among smallholder among previously cereal farming households.

ii) In areas such as Hurungwe where casual wage labour and migration have been significant, a shift of labour away from the home farm has been witnessed resulting in gender division of labour. Migratory labour opportunities are pursued by men in a household leaving women to tend to the home farm. This can result in a feminisation of smallholder agriculture as women take on a wider range of tasks in order to maintain the food production for household subsistence. However, diversification opportunities can be exploited by women for additional income earning can lead both to empowerment and improvements in family welfare. The implications of diversification especially on small scale agriculture need to be considered in terms of the impact on both men and women. It would be particularly important to consider changing roles for women in small-scale agricultural production.

iii) Thirdly, Zimbabwe alongside other countries in the region has banned importing genetically modified food unless it is already milled. However, recent scaling up of support to smallholder farmers though distribution of seeds with the terminator gene poses numerous questions on the sustainability of food security interventions. It would be important to undertake a study on the impact of biotechnology on rural food security, traditional seed storage systems and community seed banks. The study will focus on how farming households have been impacted by biotechnology in particular GM technology in seed production, intellectual property and related issues.

General Conclusion

The study sought to understand how the diversification of livelihoods has impacted on household food security. It established that nature and extent of which households diversify livelihoods is a complex and dynamic process that takes into account available assets, capacities and socio-economic considerations such as household size, wealth status. In the study area, diversification patterns have been influenced largely by the socio-economic factors at a macro level whilst factors such as skills availability, access to finance, capital assets and markets played in important role as well. The shift towards tobacco farming by many small holder farmers complicated the diversification process. It is however imperative to recognize that rural non-farm livelihoods cannot be expected to drive the rural economy alone.

In light of diminishing returns in smallholder agriculture due to a multiplicity of factors such as HIV and AIDS, climate change, environmental degradation, population growth, globalisation and weak support from national government, nonfarm livelihoods have the potential to contribute significantly to food security, poverty reduction and household incomes. The intricate linkages between rural nonfarm livelihoods and agriculture imply that with the good rural infrastructure it may significantly support rural growth in sub Saharan Africa. Problems with access to capital and credit, marketing information and facilities, skills and business networks continue to act as barriers to entry for poorer households. This is in addition to limited demand for non-tradable goods and services, rather than supply constraints, a principal problem facing rural nonfarm activities in poorer, stagnant economies.

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ANNEX 1 INFORMATION GATHERING TOOL

Target Group	Questions
Community members (male, female, youths) FGD	1. What has been the impact of drought in your community?
	2. What strategies have been adopted in response to drought and increased food insecurity in the community?
	3. What are the common livelihood strategies you have adopted in response to drought and increased food insecurity?
	4. What factors have influenced the choice of the mentioned livelihood strategies?
	5. What external support have you received from Gvt/NGOs to strengthen livelihood diversification?
	6. What factors may have strengthened or weakened the contirbution of livelihood diversification on food security?
	7. What forms of support and from who would you require to bolster your livelihood strategies?
NGOs/Gvt rep-(KII)	1. What have been the identified impacts of drought on the Hurungwe community?
	2. What off-farm strategies have been adopted by communities to mitigate the impact of drought on food security?
	3. What support has been rendered by gvt and other organisations to the same communities to bolster their livelihood strategies?

	4. What do you view as potential threats or factors which limit the efficacy of livelihood diversification as a strategy against drought?
	5. What is your assessment on the contribution of livelihood diversification on food security?
	6. What recommendations would you make to policy makers, donors etc on how to strengthen off farm livelihoods and ensure food security at household level?
Community members involved in off-farm livelihoods (KII)	1. What has been the impact of drought in your community?
	2. What alternative livelihood activities are you engaged in response to drought and food insecurity?
	3. What prompted you to diversify and select this type of activity (ies)?
	4. How effective have been community level groups/networks in supporting your livelihood strategy ?
	5. How would you rate the impact and contribution of your enterprise/activities in improving food security?
	6. What challenges do you still face in improving food security though diversifying livelihoods?
	7. Have you received any external support to strengthen your off-farm livelihood activities? If so what type of support?
	8. What would recommend to developmental organisations and government as effective ways of support community members involved in off-farm livelihoods?